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IDENTIFIERS Georgia; Germany; Iowa; North Carolina; United States

ABSTRACT

This document contains 14 research paper presentations and 5 "mini-tips" from the 1998 American Vocational Education Research Association (AVERA) annual meeting. The first section includes three papers on international and distance education: "Determining Success of Vocational Students Enrolled in Distance Education Courses" (Michael K. Swan, Diane H. Jackman); "The Use of Applied Communications in Developing Critical Thinking Skills of Tech Prep Students" (Don R. Gelven, Bob R. Stewart); and "Using Delphi Technique to Create a Definition of Internationalization" (Barbara G. Ludwig). Three papers on school-to-work transition issues are included in the second section: "School-to-Work Curricula in the Middle Schools: Benefits, Issues, and Concerns" (Curtis Finch, Marianne Mooney); "Comparing Three Automotive Partnership Programs at the Community College Level with the School-to-Work Model" (Michael L. Klyde, Leonard Albright); and "Stages of Concern of Administrators and Teachers in the Implementation of the School to Work Transition Initiative in North Carolina" (Barbara M. Kirby, Wilbur Smith). Two papers on university instruction in agriculture make up the third section: "Attitudes of College of Agriculture Freshmen Toward Agriculture" (Lisa Breja, James E. Dyer, Randall J. Andreasen); and "Safety Issues in Agriculture Education Laboratories" (James E. Dyer and Randall Andreasen). The fourth section contains papers on recent doctoral research in vocational education: "Factors Influencing Females Choosing Nontraditional Vocational-Technical Occupations" (Susan Deege); "Work Values and Leadership Styles of Manufacturing Employees in the U.S. and Germany: A Cross Cultural Comparison" (K. Peter Kuchinke); "Technical and Occupational Education Instructors' Perceived Uses of Student Assessment Information in Making

Educational Decisions" (Greg Belcher); and "The Education of Retail Managers through Management Training Programs in Apparel Retail Organizations" (Irene M. Foster, William L. Theummel). In the fifth section, two papers explore assessment in vocational education: "Assessment of Work-Based Learning Programs in Georgia" (Clifton Smith); and "Assessment in the Vocational Education Classroom: Using Information for Instructional Decisions" (Howard R. D. Gordon, Richard J. Yocke). Following the papers are "mini-tips" on issues in vocational educational research: "Using Qualitative Research to Frame the Examination of an Alternative Vocational Teacher Education Program" (Gloria Heberly); "Characteristics of a Conceptual Framework Addressing the Environment of Instructional Space" (Lennie Scott-Webber); "Strengths and Weaknesses of E-mail as a Survey Research Method" (Allen D. Truell); "A Redesigned Program for the Preparation of Teachers" (Bob R. Stewart, Martin Bergee); and "Exploratory Style of Vocational Educators" (Helen C. Hall, Bettye P. Smith). Individual papers contain references. (KC)

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American Vocational Education Research Association

1998

PROCEEDINGS

American Vocational Association

**1998 Annual Convention
New Orleans, Louisiana**

December 10-13, 1998

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AVERA
American Vocational Education
Research Association

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1998 Annual Convention
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December 10-13, 1998

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Notes from the Program Chair

The 1998 American Vocational Education Research association (AVERA) Annual Meeting was held December 9-13, 1998 in New Orleans, Louisiana as part of the American Vocational Association (AVA) Annual Convention. The theme of the AVA Convention was "Creating Futures". This Theme was carried over from the AVA Convention in 1997.

AVERA is the research section of New and Related Services Division of AVA. Our organization had four research paper sessions, one doctoral dissertation paper session, one Grand Carousel section, the past presidents' open forum and a business meeting. The complete program is presented following the Table of Contents in these Proceedings. The 28 papers submitted for consideration were all submitted to a panel of twelve reviewers in a blind peer-review process. Each submission was review by three reviewers. This process resulted in nineteen papers being accepted. All of the presenters provided their papers for inclusion in this set of Proceedings.

I am grateful for all those individuals who provided their assistance and made the 1998 annual research meeting at AVA possible. To the session chairs and facilitators and to the President, Wanda Stitt-Ghodes and Past-President, Donna Redmann, I owe my appreciation. I am also thankful to my program assistant, Monica Jackson, and graduate assistant, Herbie Barber, for their assistance with all of the meeting details and proceedings copy preparation. I am especially thankful for the assistance of the twelve reviewers of the proposals. These reviewers are:

Kirby R. Barrick, University of Illinois, Urbana-Champaign; Wesley E. Budke, The Ohio State University; Michael F. Burnett, Louisiana State University; Carol A. Conroy, Cornell University; James Flowers, North Carolina State University; Maynard J. Iverson, University of Georgia; Theodore Lewis, University of Minnesota; Larry Miller, The Ohio State University; Donna H. Redmann, Louisiana State University; Wanda Stitt-Ghodes, The University of Georgia; Michael K. Swan, Washington State University; Dennis G. Tesolowski, Clemson University.

It is my hope that the research presented here and the discussion that occurred at the meeting will advance both the profession and the individuals who participated. It has been my pleasure to serve as program chair but it was the assistance provided by those named above and many others that made this meeting and proceedings possible.

Hollie B. Thomas
AVERA President-Elect and Program Chair
Americian Vocational Education Research Association
1998 AVERA/AVA Annual Convention

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AGENDA

NRS RESEARCH-DAY-BY-DAY LISTINGS

Wednesday, December 9, 1998

1:30 – 5:00 p.m

Journal of Vocational Education Research Editorial Board Meeting

Chair: Diane Jackman, Editorial Board Chair, North Dakota State University
Facilitator: Jay Rojewski, JVER Editor, The University of Georgia, Athens, GA

Thursday, December 10, 1998

7:00 – 10:00 a.m

AVERA Executive Committee Breakfast Meeting (By Invitation Only)

Chair: Wanda L. Stitt-Gohdes, AVERA President, The University of Georgia, Athens, GA
Facilitator: Hollie B. Thomas, AVERA President-Elect, Florida State University, Tallahassee, FL

1:30 – 3:00 p.m

International and Distance Education

Topic 1: *Determining Success of Vocational Students Enrolled in Distance Education Courses*

Speakers: Michael K. Swan, Washington State University,
Diane H. Jackman, North Dakota State University

Topic 2: *The Use of Applied Communications in Developing Critical Thinking Skills of Tech Prep Students*

Speakers: Don R. Gelven, Linn State Technical College,
Bob R. Stewart, University of Missouri

Topic 3: *Using the Delphi Technique to Create a Definition of Internationalization*

Speaker: Barbara G. Ludwig, Ohio State University

Chair: Larry E. Miller, The Ohio State University
Facilitator: Carol A. Conroy, Cornell University

3:30 – 5:00 p.m

School – to – Work Issues

Topic 1: *School –to – Work Curricula in the Middle Schools: Benefits, Issues and Concerns*

Speakers: Curtis Finch, Marianne Mooney, Virginia Polytechnic Institute, State University and National Center for Research in Vocational Education

Topic 2 *Comparing Three Automotive Partnership Programs at the Community College Level with the School – to – Work Model*

Speakers: Michael L. Klyde, Leonard Albright, California State University at Long Beach

Topic 3: *Stages of Concern of Administrators and Teachers in the Implementation of the School – to – Work Transition Initiative in North Carolina*

Speakers: Barbara M. Kirby, North Carolina State University, Wilbur Smith, Jr, Public Schools of Robeson County, North Carolina

Chair: Wesley E. Budke, The Ohio State University

Facilitator: Marcia A. Anderson, Southern Illinois University

Friday, December 11, 1998

10:30 a.m. – 12:00 noon

Critical Issues in Vocational Education: Open forum of AVERA Past Presidents

Speakers: Past Presidents of the American Vocational Education Research Association (AVERA)

Chair: Donna H. Redmann, Past President, Louisiana State University, Baton Rouge, LA

Facilitators: Wanda L. Stitt-Gohdes, AVERA President, The Georgia State University, Athens, GA
Hollie B. Thomas, AVERA President-Elect, Florida State University, Tallahassee, FL

12:00 noon – 1:30 p.m.

Past President Luncheon

- Chair:** Donna H. Redmann, AVERA Past President,
Louisiana State University, Baton Rouge, LA
- Facilitators:** Wanda L. Stitt-Gohdes, AVERA President, The
Georgia State University, Athens, GA
Hollie B. Thomas, AVERA President-Elect,
Florida State University, Tallahassee, FL

1:30 – 5:00 p.m.

Grand Carousel

Issues in Vocational Education Research

- Carousel 1:** *Using Qualitative Research to Frame the
Examination of an Alternative Vocational
Teacher Education Program*
- Speaker:** Gloria Heberly, Temple University
- Carousel 2:** *Characteristics of a Conceptual Framework
Addressing the Environment of Instructional
Space*
- Speaker:** Lennie Scott-Webber, Virginia Tech
- Carousel 3:** *Strengths and Weaknesses of E-mail as a Survey
Research Method*
- Speaker:** Allen D. Truell, University of Missouri-
Columbia
- Carousel 4:** *A Redesigned Program for the Preparation of
Teachers*
- Speaker:** Bob R. Stewart, University of Missouri
- Carousel 5:** *Exploratory Style of Vocational Educators*
- Speaker:** Bettye P. Smith, The University of Georgia

5:30 – 7:30 p.m.

AERA Presidential Address and Annual Business Meeting

- Chair:** Donna H. Redmann, Past President AVERA
Louisiana State University, Baton Rouge, LA
- Facilitators:** Wanda L. Stitt-Gohdes, AVERA President, The
Georgia State University, Athens, GA
Hollie B. Thomas, AVERA President-Elect,
Florida State University, Tallahassee, FL

Saturday, December 12, 1998

10:30 – 12:00 noon

University Instruction in Agriculture

- Topic 1:** *Attitudes of Iowa State University College of Agriculture Freshmen Toward Agriculture*
Speakers: Randall Andreasen, Lisa Breja, James E. Dyer, Iowa State University
- Topic 2:** *Agriculture Education Laboratories: Are They Safe?*
Speakers: James E. Dyer, Randall Andreasen, Iowa State University
- Chair:** Michael F. Burnett, Louisiana State University
Facilitator: Joe W. Kotrlik, Louisiana State University

1:30 – 3:00 p.m.

Recent Doctoral Research in Vocational Education

- Topic 1:** *Factors Influencing Females Choosing Nontraditional Vocational-Technical Occupations*
Speaker: Susan Deege, Lindenwood University
- Topic 2:** *Work Values and Leadership Styles of Manufacturing Employees in the U.S. and Germany: A Cross-Cultural Comparison*
Speaker: K. Peter Kuchinke, University of Illinois at Urbana-Champaign
- Topic 3:** *Technical and Occupational Education Instructors' Perceived Use of Student Assessment Information in Making Educational Decisions*
Speaker: Greg Belcher, Pittsburg State University
- Topic 4:** *The Education of Retail Managers Through Management Training Programs in Apparel Retail Organizations*
Speaker: Irene M. Foster, University of Massachusetts, Amherst
- Chair:** Donna H. Redmann, Louisiana State University
Facilitator: Davison Mupinga, Louisiana State University

3:30 – 5:00 p.m.

Assessment in Vocational Education

Topic 1: *Assessment of Work – Based Learning Programs in Georgia*

Speaker: Clifton Smith, University of Georgia

Topic 2: *Assessment in the Vocational Education Classroom: Using Information for Instructional Decisions*

Speakers: Howard R. Gordon, Marshall University
Richard J. Yocke, West Virginia University Institute of Technology

Chair: William B. Camp, Virginia Tech

Facilitator: Rosalyn Vaughn

Determining Success of Vocational Student Enrolled in Distance Education Courses

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Introduction

Distance education is an emerging technology intended to deliver both resident and remote site instruction and educators who use distance education must provide educational experiences that will equal resident education in terms of quality and quantity. Both resident and distance education are intended to provide students with valid, useful information that promotes learning. Resident, or host site, education occurs when the instructor and students meet at a predetermined location, thus providing easy face-to-face interaction. Distance, or remote site, education has been accepted as teaching when the instructor and students are physically separated in terms of location and/or time. The instructor can be in different buildings, cities, counties, states, or even countries. According to Swan and Brehmer (1994), distance education refers to "the simultaneous delivery of instruction from a host site or classroom to remote site(s), coupled with real time live audio and real time live video interaction between teacher and student(s) – not correspondence, video, or internet courses."

Swan (1995) noted that advancements in communications technology have dissolved some of the major distinguishable characteristics between distance education and traditional education. According to Swan and Jackman (1996), strategies of teaching at a distance and host site are converging because traditional teaching strategies are being abandoned or modified in favor of a problem-based, resource-based, or activity based approach that de-emphasizes the teacher as the main source of knowledge. In 1990, Moore and Thompson analyzed resident and distance education and developed a framework for determining the relationship between the two methods or strategies of instructional delivery. They noted that developing technology will eventually merge distance education with the traditional approach so that distinctions cannot be made between the two methods of strategies. However, Kelly (1990) indicated that the transition from resident instruction in the traditional classroom to distance education requires educators to develop new skills in instructional strategies, methods of teaching, timing, teacher/student interaction, feedback, printed supplement materials, and evaluation.

Souder (1993) compared distance learners and traditional host site learners. The distance education learners performed better than the host site learners on several dimensions, including exams and homework assignments. This finding was attributed to the extraordinary commitment, higher maturity level, and motivation of the distance learner. However, this finding is contrary to other evidence that distance learners are at a disadvantage in their learning experience, especially evaluation of their cognitive performance (Moore and Thompson, 1990).

The increasing availability of telecommunications has provided vocational or applied education faculty with unique opportunities to plan and deliver distance education courses and programs.

Vocational education students are also enrolling in more distance courses and programs due to availability, time, and place. However, there is a lack of studies that compare the performance of vocational education students receiving instruction via distance technology versus students receiving the same instruction through the traditional resident, host site, classroom setting.

Purpose/Objectives

The purpose of the study was to ascertain if student achievement differences existed in courses delivered via distance education. Specific research objectives were:

1. Describe student's enrolled, remote site and host site, in distance education courses on selected demographic characteristics
2. Ascertain if differences existed between remote site and host site student achievement based on grades/scores (GPA) obtained by grade level.
3. Ascertain if differences existed between remote site and host site student achievement (final grade received) based on individual course success.

Methodology

Population

The population of remote site and host site schools was identified from an alphabetical list of secondary schools utilizing distance education technologies supplied by the State Department of Public Instruction. The schools were all located within one midwestern state. Each of the identified schools administration were asked to participate in the study. From the total list of schools using distance education, a total population of schools willing to participate were identified, N = 46 schools. From this revised list of schools, a study sample was selected using appropriate cluster sampling methods outlined by Wiersma (1995).

As each school was selected, all courses/classes being offered via distance education from that school were selected for this study. Each student in the study, n = 623, was enrolled in at least one course being offered via distance education. To retain the confidentiality of the student, administrators or the assigned school representative was asked to assign an identification number to each student. This number was used to report all data concerning that student. The researcher did not know or have knowledge of any student name, only their assigned number.

Instrumentation / Data Collection

The study instrument, adapted from the Souder study (1993), was completed from student's records by the administration or assigned school representative. The instrument was assessed for content and face validity by graduate students, teacher educators, and state supervisors in vocational education. Reliability of the instrument was .89 (Cronbach's alpha coefficient). They were asked to report gender, grade level of student, period(s) taking distance education courses, name(s) of specific distance education course(s), location of student (remote or host site), total

daily assignment scores, exams and/or quiz scores, and final exam score. All grades reported were based on or converted to a 0 to 100 point system. If conversions were made they were made by the administration or assigned school representative using a scale provided by the researcher. This grading scale was one recommended by the state superintendents and principals association.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS Version 6.1) for Windows. Data were summarized using descriptive statistics. Frequencies, percentages, means and standard deviations were utilized to analyze and describe findings. One way analysis of variance was used to analyze differences between the grade levels of students, the location of student, and gender. All tests were run at the .05 alpha level.

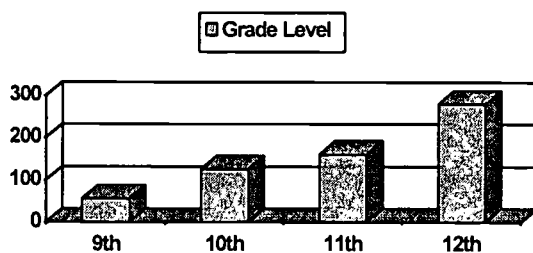
Results

Objective 1: Demographic Characteristics

Demographically, students in the study were predominately located at remote sites, 68.1% (424), and 31.9% at host sites (199). In the study, there were 245 male students (39.3%) and 378 female students (60.7%). The study identified ten individual courses being offered via distance education, one course was eliminated from the study because no scores were made available to the researcher. Table 1 identifies the total number of students by grade level, 9th = 56 (9%), 10th = 126 (20.2%), 11th = 161 (25.9%), and 12th = 280 (44.9%).

Table 1

Grade Level of all Students



As shown in Table 2, the study group is divided into groups identified by specific course name and by location receiving the course. Frequencies and percentages are used to identify students enrolled in distance education courses all sites in the study.

Table 2

Individual Course Enrollment Frequencies and Percentages

Course Name	All Sites		Host Site		Remote Site	
	N	%	N	%	N	%
Foreign Language	231	37.1	91	39.4	140	60.6
Ag Business Mgt.	77	12.4	3	3.9	74	96.1
Vocational Marketing	21	3.4	14	66.7	7	33.3
Natural Resources	42	6.8	4	9.5	38	90.5
Math - Calculus	119	19.1	63	52.9	56	47.1
Chemistry	70	11.2	9	12.9	61	87.1
Art	14	2.2	5	35.7	9	64.3
Statistics	14	2.2	6	42.9	8	57.1
Animal Science	35	5.6	4	11.4	31	88.6
Total	623	100	199	31.9	424	68.1

Objective 2

One way analysis of variance was used to test if differences in student achievement existed between remote and host site students based on mean GPA. No significant differences were found.

Table 3 identifies the mean Grade Point Average (GPA) of students located at remote sites and at host sites. The grade point averages of students enrolled in distance education courses at both the remote and host sites were very similar.

Table 3

Grade Point Average According to Location Receiving Course

Location	N	GPA	SD
Remote Site	424	3.19	.76
Host Site	199	3.14	.84
Total All Sites	623	3.18	.78

ANOVA was used to test if differences in student achievement existed between grade levels based on mean GPA. There were significant differences among the four groups (9th grade, 10th grade, 11th grade, and 12th grade). The analysis of the data yielded an F value of 2.84 with a p of .037 as reported in Table 4. Ninth grade students earned a GPA significantly higher than 11th grade students and 9th grade students earned a significantly high GPA than did 12th grade students as reported in Table 5.

Table 4

Analysis of Variance for Grade Point Average on Grade Level

Source	df	SS	MS	F	p
Between	3	5.20	1.73	2.84	.037
Within	619	377.32	.61		

Table 5

Grade Point Average of students by grade level and by site

Grade Level / Site	N	GPA	SD
9 th Host Site	2	3.35	.92
9 th Remote Site	54	3.43	.73
9 th Total	56	3.43	.72
10 th Host Site	70	3.19	.71
10 th Remote Site	56	3.25	.58
10 th Total	126	3.22	.65
11 th Host Site	71	3.31	.57
11 th Remote Site	90	3.08	.79
11 th Total	161	3.18	.71
12 th Host Site	56	2.87	1.16
12 th Remote Site	224	3.16	.78
12 th Total	280	3.10	.87

Objective 3

One way analysis of variance was used to test if differences existed between remote site students GPA and host site students GPA by individual course. There were no significant differences among the two groups (remote site and host site). The analysis yielded an F value of .51 with a $p = .47$ as reported in Table 6. There were significant differences between the groups by grade level. The analysis yielded an F value of 12.23 with a $p = <.0001$. Analysis of data of student achievement (GPA) by remote site or host site by individual course identified no significant differences. The analysis yielded an F value of .77 with a $p = .62$ as reported in Table 6.

Table 6

Analysis of Variance for Grade Point Average on Site Location and Individual Course

Source	df	SS	MS	F	p
Site	1	.262	.262	.511	.4749
Class	8	50.194	6.274	12.231	<.0001
Site * Class	8	3.186	.398	.776	.6237

When comparing student GPA by course we see differences in individual courses. All courses GPA's were identified as being significantly higher than GPA's in Vocational Marketing. Foreign Languages GPA's were significantly higher than GPA's in Vocational Marketing. Natural Resources GPA's, Chemistry GPA's, and Art GPA's were significantly higher than GPA's in Foreign Languages. Natural Resources GPA's were significantly higher than GPA's in Ag Business Mgt., Math, and Animal Science as reported in Table 7. Significant differences were found when grouping traditional vocational courses, Ag Business Mgt., Vocational Marketing, Natural Resources, and Animal Science, together and comparing to the traditional academic in student achievement as measured by Grade Point Average. Students in traditional academic courses (3.25 GPA) had a higher GPA than did students in vocational courses (2.99 GPA). The analysis yielded an F value of 13.56 with a $p = .0003$ as reported in Table 8.

Table 7

Individual Course Success (GPA) by Host Site and Remote Site

Course Name	Host Site		Remote Site	
	N	GPA	N	GPA
Foreign Language	91	3.29	140	3.06
Ag Business Mgt.	3	3.23	74	3.09
Vocational Marketing	14	1.70	7	2.00
Natural Resources	4	3.68	38	3.43
Math - Calculus	63	3.11	56	3.21
Chemistry	9	3.57	61	3.58
Art	5	4.00	9	4.00

Statistics	6	3.50	8	3.50
Animal Science	4	3.43	31	2.88

Table 8

Analysis of Variance for Grade Point Average on Academic and Vocational Courses

Source	df	SS	MS	F	p
Between	1	8.18	8.18	13.56	.0003
Within	621	374.34	.60		

Conclusions, Implications and/or Recommendations

Students enrolled in distance education courses were primarily located at remote sites. Remote site students were provided the opportunity to take these courses because courses were being offered via distance education technology. Without this opportunity, most of these students (424) would not have been able to enroll in these courses. As students gained experience with distance education and grade level they enrolled in more courses being offered via distance education.

Receiving instruction by distance education resulted in no differences in grade point average for all students at either remote site or host site. Students in 9th grade did have higher grade point averages than did 11th grade and 12th students. This can be attributed to the specific courses and complexity of courses taken by these groups of students. Twelfth grade students located at host sites had a significantly lower GPA than 12th grade students located at remote sites. This area needs further analysis to determine exact reason for this occurrence.

Significant differences did not exist between all remote site students and all host site students in this study. It did make a difference if a student was in the same room with the teacher or if they were at a different location. Significant differences were found when grouping students by grade level and if they were located at remote site or host site. Remote site students in 9th, 10th and 12th grades had a higher GPA than did their counterparts located at the host site.

Individual courses being offered via distance education revealed differences in student achievement. Vocational Marketing was significantly different than all other courses. After placing a phone call to the local administrator it was determined that the cause could have been that the teacher was in their first year of teaching and this was the first distance education course they had taught. Generally it did not matter if the student was at the remote site or host site for the instruction, student success was high or above average on all except one course.

Grouping traditional academic courses and comparing to the vocational courses offerings significant differences were revealed. Students taking traditional academic courses were

receiving a higher GPA than those students taking vocational courses. This could have been because of the lack of applied hands-on activities in the vocational courses.

The results of the study offer promise that distance education courses do provide opportunities for students who would otherwise not be able to take these courses. Additionally student success, GPA, was above average (mean GPA whole group = 3.18) in these courses.

Further research needs to be conducted with populations of students to determine if there are differences in learning styles of students who are enrolled in distance education courses. This could have attributed to the success rate of students enrolled in these courses. Additionally, the quantity of distance education courses being taken by students may be a contributing factor to success.

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The Use of Applied Communications in Developing Critical Thinking Skills of Tech Prep Students

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Introduction and Theoretical Base

Employers and educators are generally in agreement that students need to increase their problem solving and critical thinking skills. Numerous national reports have pointed out that students are deficient in this area. The Tech Prep initiative has tended to focus on activities designed to better prepare students for the world of work (Custer, Ruhland, & Stewart, 1997).

Various approaches have been proposed for improving the problem solving and critical thinking skills of students. Three approaches found in the literature were the general, infusion, and immersion methods which Sormunen (1992) discussed. The general method of teaching critical thinking is by a separate course outside of any content area. The infusion method consists of teaching general principles of reasoning within the context of subject matter. The immersion method focuses on the knowledge content without pointing out general critical thinking principles.

The theoretical base of this study was formed from cognitive and behavioral learning theories and theories of self-efficacy as applied to problem solving and critical thinking. These learning theories can be categorized as theories that fall within two broad areas. The first area deals with the nature of problem solving and critical thinking. The second with whether problem solving and critical thinking can be taught, and how to teach it if it can be taught.

The ability to think critically and to solve problems has been a concern of philosophers, educators, and psychologists for many centuries. Sternberg (1986) stated that Plato and Aristotle founded the critical thinking movement. These philosophers were concerned with the first area of theory. Sternberg attributes the modern-day movement to John Dewey. Dewey (1933) was concerned with the nature and value of thinking. He considered thinking to be the process by which individuals find meaning in the world in which they live. The ability to think critically is a prerequisite for problem solving and as such is of significant value. Dewey believed that the ability to think critically, or reflectively, was a function of one's experience as well as one's intellect.

The basis for the second area of learning theory, that which deals with methods for developing cognitive abilities, can be traced to Bloom (1956). Bloom developed a taxonomy of cognitive levels of learning. Each level requires a different mental activity or way of thinking. Lower levels of learning are a prerequisite for higher levels, where higher levels are often referred to as requiring higher-order thinking skills. Problem solving requires higher-order thinking, which according to Bloom can be taught.

A number of authors have proposed methods for teaching thinking and problem solving. For example, Bruner, Goodnow, & Austin, (1956), Gallagher (1993), Halpern (1984), and Ruggiero (1988) have described various aspects of thinking, learning, and problem solving and

methods for developing problem solving skills. The methods they proposed are based upon both cognitive and behavioral learning theories.

The basis for theories of self-efficacy can be attributed to Bandura (Greenberg and Baron, 1993). They discussed the development of self-efficacy. The theory is that self-efficacy develops "partly through direct experiences, in which individuals perform various tasks and receive feedback on their success, and partly through vicarious experiences, in which they observe others performing various tasks and attaining varying levels of success at them" (p. 208). They further stated that, regardless of how it develops, "the stronger individuals' beliefs that they can perform successfully, the higher their performance actually tends to be" (p. 208).

Problem solving is one of the foundation skills needed for high-skill, high-wage employment (United States Department of Labor, 1992; Daggett, 1992). Life in technologically oriented countries, such as the United States, is characterized by rapid change. This rapid change complicates life and makes it necessary for students to learn how to be effective problem solvers. It is particularly desirable that students learn to be effective problem solvers in the context of actual production in work situations. In order to keep up with international competition and the faster pace of technological change, employers in the United States are demanding that the public schools be responsible for developing the critical thinking and problem solving skills of students. In response to this demand, goals have been defined at both the national and state level for developing students' problem solving skills.

The fifth objective of National Education Goal 6 calls for increasing the proportion of college graduates who demonstrate the ability to think critically and solve problems. Specifically, the objective is that: "The proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems will increase substantially" (National Education Goals Panel, 1994, p. 10).

This study investigated the extent to which the development of problem solving self-efficacy and critical thinking skills, based upon learning theory and theory explaining the development of self-efficacy, were accomplished in a Tech Prep applied communications course.

Purpose

The primary purpose of this study was to examine the effect of participation in a Tech Prep program and specifically an applied communications course on the problem solving self-appraisal and selected aspects of critical thinking skills of secondary students. A secondary purpose was to examine the effects of a traditional English course and an honors English course on these factors. The study was conducted to answer the following questions:

1. Is there a significant difference in the mean total scores from a self-appraisal of problem solving abilities and from a measurement of critical thinking skills among students completing an applied communications course, a traditional English course, or an honors English course?
2. Is there a significant difference in students' self-appraisal of their problem solving abilities and in selected aspects of students' critical thinking skills when measured near the beginning and near the end of an applied communications course, a traditional English course, or an honors English course?

3. Is there a significant relationship between the students' self-appraisal of their problem solving abilities and their critical thinking skills for students completing an applied communications course, a traditional English course, or an honors English course?

Methods

A pretest-posttest nonequivalent control group design was used for the study. Demographic information and two instruments were used to collect data.

The instrument used to measure the individual's self appraisal of their problem solving self-efficacy for this study was the Problem Solving Inventory (PSI) Form B (Heppner, 1988). The PSI contains 35 items and uses a 1 to 6 Likert-type scale with 1 representing strong agreement and 6 strong disagreement with the statement. Reliability for the PSI was reported to be $r = .89$ for test-retest reliability and $r = .90$ for internal consistency. The instrument used to measure selected aspects of the students' critical thinking abilities was the Watson-Glaser Critical Thinking Appraisal (WGCTA) Form B (Watson and Glaser, 1980). The instrument consists of 80 items divided into five subscales of 16 items each and includes exercises which are purported to be examples of problems, statements, and interpretations of data which are regularly encountered at work or school. The split-half reliability estimates for eleventh grade students was reported to be $r = .79$. The maximum raw score for the WGCTA is 80.

The purposive sample consisted of the students enrolled in four sections of each of three different English courses. The three courses were comprised of an applied communications course, a traditional English course, and an honors English course. Where there were more than four sections of a course, the sections for this study were randomly selected. The total number of students enrolled in the 12 sections included in this study was 254 at the time of the pretest, increasing to 279 by the time of the posttest. Complete data, which consisted of pretest and posttest measurements for both the PSI and WGCTA, were obtained from 136 students. These 136 students included 53 Honors English III students, 43 English III students, and 40 applied communications students. All of these students were in the 11th grade, with the exception of one 10th grade student who was assigned to English III, and three 12th grade students who were assigned to applied communications.

The Statistical Analysis System (SAS) was used to calculate a MANOVA (multivariate analysis of variance) with the general linear model adaptation for a two factor repeated measures experiment or a Pearson Product-Moment correlation, as appropriate. The null hypotheses were rejected if the F value was significant at equal to or less than the .05 alpha level.

Findings and Conclusions

The mean pretest and posttest scores (Table 1) on the PSI for the Honors English students was 83.7 and 79.0; for the English III students was 92.4 and 90.8; and for the applied communications students was 93.2 and 95.7. The mean pretest and posttest scores on the WGCTA for the Honors English students was 57.5 and 59.1; for the English III students was 48.5 and 45.6; and for the applied communication students was 43.1 and 42.6.

Table 1**Mean Pretest and Posttest Scores for the PSI and WGCTA**

<u>Variable</u>	<u>M</u>	<u>n</u>	<u>SD</u>	<u>Variance</u>	<u>SE</u>
<u>Course 1-Honors English III</u>					
Pretest PSI	83.736	53	17.811	317.237	2.447
Posttest PSI	79.000	53	19.104	364.962	2.624
Pretest WGCTA	57.453	53	6.256	39.137	.859
Posttest WGCTA	59.151	53	7.140	50.977	.981
<u>Course 2-English III</u>					
Pretest PSI	92.419	43	14.945	223.344	2.279
Posttest PSI	90.791	43	18.809	353.788	2.868
Pretest WGCTA	48.488	43	7.830	61.303	1.194
Posttest WGCTA	45.628	43	8.449	71.382	1.288
<u>Course 3-English III C</u>					
Pretest PSI	93.225	40	19.453	378.435	3.076
Posttest PSI	95.725	40	21.664	469.333	3.425
Pretest WGCTA	43.100	40	7.063	49.887	1.117
Posttest WGCTA	42.575	40	6.898	47.584	1.091

The first hypothesis, HO1, stated there is no statistically significant difference in the mean total scores from the PSI and WGCTA by type of English course assignment. HO1 was rejected at the .05 level of significance. As reported in Tables 2 and 3, there was a significant difference in mean total scores of students by English course assignment. Students assigned to the honors English III course had mean total scores which were significantly more positive than the mean total scores of students assigned to English III. The mean total scores of English III students were, in turn, significantly more positive than the mean total score of applied communication students.

Table 2**Pillai's Trace Test for Multivariate Analysis**

<u>Value</u>	<u>Source</u>	<u>F</u>	<u>NDF</u>	<u>DDF</u>	<u>PR>F</u>
Course	.78878902	43.3075	4	266	.0001*
Time	.01707687	1.1467	2	132	.3208
Interaction	.09904930	3.4650	4	266	.0088*

* Significant

Table 3
ANOVA for PSI and WGCTA

PSI	DF	SS	MS	F	PR>F
Course	2	9076.396	4538.198	7.82	.0006*
Error	133	77163.659	580.177		
Time	1	111.202	111.202	.95	.3322
Interaction	2	596.763	298.381	2.54	.0825
Error	133	15613.174	117.392		
R-square=.847					
WGCTA	DF	SS	MS	F	PR>F
Course	2	12143.342	6071.671	75.67	.0001*
Error	133	10671.936	80.240		
Time	1	21.208	21.208	.83	.3632
Interaction	2	247.125	123.562	4.85	.0093*
Error	133	3388.153	25.474		
R-square=.871					

* Significant

The second null hypothesis, HO2, stated there is no statistically significant difference in the mean total scores from the PSI and WGCTA by time of administration of the test instruments. HO2 was not rejected at the .05 level of significance. As reported in Table 2, there was no significant difference between the pretest and posttest mean total scores from the PSI and WGCTA, for any class of students.

In addition, results were examined to check for interactions. An analysis of variance procedure revealed that there was a significant interaction between the mean WGCTA scores by the type of English course assignment and time. A post hoc test (Table 4) was used to isolate source of the differences between the interaction of course and time. It was ascertained that the mean pretest and posttest WGCTA test scores of honors English III students were significantly higher than the mean pretest and posttest WGCTA scores of English III and applied communications students. Also, English III student's pretest and posttest scores were significantly higher than the pretest and posttest scores of applied communications students.

Table 4Least Square Mean, Least Square Standard Error and Least SignificantDifference Test for Dependent Variables PSI and WGCTA by Course

Course	<u>n</u>	<u>M</u>	<u>SE</u>		LSD Test	
					2	3
<u>Dependent Variable=PSI</u>						
Honors English III	106	81.367	1.052	1	.0001*	.0001*
English III	86	91.604	1.168	2		.0904
English IIIC	80	94.475	1.211	3		
<u>Dependent Variable=WGCTA</u>						
Honors English III	106	58.301	.490	1	.0001* --	.0001*
English III	86	47.058	.544	2		.0001*
English IIIC	80	42.837	.564	3		

* Significant

The third null hypothesis, HO3, stated the correlation between the student's scores from the PSI and from the WGCTA is not statistically different from zero. HO3 was tested using the Pearson Product-Moment calculation. It was ascertained that the correlation of .41 for the students' posttest scores from the PSI and WGCTA was significantly different than zero. Therefore, null hypothesis HO3 was rejected.

The results of this study do not support a conclusion that the critical thinking skills of any of the three groups of subjects of this study were significantly changed during the course of the school year. Therefore, it cannot be concluded that the applied communications course significantly changed students' critical thinking skills. On the other hand, it cannot be concluded that the honors English III or the traditional English III courses significantly changed students' critical thinking skills.

Implications

These results may support a belief that critical thinking skills and problem solving skills cannot be developed in a short period of time. This explanation is consistent with a conclusion reached by Langholz and Smaldino (1989). They pointed out that there is not much evidence to support the conclusion that critical thinking and problem solving can be developed in a short period of time.

There is evidence from the literature that would support the idea that training can develop a more positive self-appraisal of an individual's problem solving abilities. Gallagher (1993) pointed out that the PSI has been used as an outcome measure for problem solving seminars. In a study of an eclectic approach to training paraprofessionals in counseling, Gallagher administered the PSI both pre and posttest and found that the PSI scores of trainees decreased significantly, indicating that the trainees' self-appraisal of their

problem solving was more positive after training. However, the self-appraisal of their problem solving abilities by the subjects included in the present study did not significantly change over the time of the study. In addition, no statistically significant evidence was found indicating that the spread between the self-appraisal of Honors English III students as compared to the self-appraisal of applied communications students increased over time.

Although the change was not statistically significant, the posttest mean PSI scores of Honors English III and English III students were lower than their pretest mean scores. This could indicate that a slightly more positive self-appraisal of their problem solving abilities was developed. By way of contrast, the posttest mean PSI score (95.73) of the applied communications students was higher than their pretest mean score (93.23). A possible explanation for this slightly less positive self-appraisal might be that they developed a more realistic awareness of their problem solving abilities during the applied communications course.

Student's grade point averages and PLAN test scores were also examined to provide additional background information for the study. An examination of the data revealed that both the grade point average (3.5 vs. 2.2) and PLAN test scores (23.1 vs. 14.2) of the honors English students were higher than for applied communication students. Students' scores from the PLAN test, which requires higher order thinking skills, were significantly related to their PSI and WGCTA scores. This indicates that the students assigned to the different courses had different characteristics which likely influenced their performance on the test instruments.

The results of this study indicate that there was no significant improvement in the critical thinking abilities of students who complete the applied communications course. It further indicates that these students' perceptions of their problem solving skills does not become more positive as a result of completing this course.

The Tech Prep curriculum for the applied communications course should incorporate specific objectives for improving the critical thinking skills of students and for developing a more positive perception of their ability to solve unstructured problems of the type encountered at home and at work. To achieve these objectives, instruction specifically designed to develop inductive and deductive reasoning skills and to develop the ability to draw inferences should be incorporated into the Tech Prep applied communications curriculum.

In addition, other activities and courses associated with the Tech Prep initiative should be examined to ascertain to what extent they contribute to the development of critical thinking skills of students. Such information is needed as we face the challenge of better preparing all students to participate in a global and technically oriented work force.

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USING THE DELPHI TECHNIQUE TO CREATE A DEFINITION OF INTERNATIONALIZATION

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In the 21st century, an educated person will need to function effectively and responsibly in a global environment both in day-to-day work and in some social and civic interactions. A global perspective is requisite to good citizenship, and must be a focal point of all our educational and research programs.
(Sammons, 1998, p.1)

INTRODUCTION and THEORETICAL BASE

What characterizes an internationalized Extension system in the U.S.? A simple question, but one which few individuals have sought to address through research. Henson (1990) in his study of university internationalization stated that internationalization was frequently viewed in general, rather amorphous terms that were difficult for some to understand and comprehend. Arum and Van de Water (1992) in the book Bridges to the Future: Strategies for Internationalizing Higher Education supported this view. In article after article, and at conference after conference the terms used to characterize the international dimension of education vary tremendously. A review of literature revealed broad, but often ambiguous goal statements related to internationalization of Extension (King & Martin, 1991; Rosson & Sanders, 1991; Poston & O'Rourke, 1991; Andrews & Lambur, 1986). Some ideas had been formulated for higher education, but for Extension none defined internationalizing in terms of objectively verifiable indicators of success.

Identifying characteristics of an internationalized Extension system can help organizations focus available resources on creating changes needed to achieve internationalization. This becomes increasingly important with the release of a task force report from the International Agriculture Section of the National Association of State Universities and Land-Grant Colleges. *Globalizing Agricultural Science and Education Programs for America* defines an implementation plan to help position U.S. agriculture for the 21st century. It creates a vision of "globally competent stakeholders, faculty and students...who live, compete, and work well in an every dynamic and interdependent world community" (GASEPA, 1998, p. 6). Extension and outreach education are an integral part of the plan.

Kaufman (1982,1992) suggested putting problems into the context of what is and could be when dealing with organizations. The Organizational Elements Model provided a framework for the study. Kaufman's model used a holistic framework in looking at organizations and what those organizations use, do and deliver.

STATEMENT OF THE PROBLEM:

The purpose of the study was to identify the characteristics that will describe an internationalized state university Extension system.

METHODOLOGY:

The study used a three-round, modified Delphi technique to explore and describe the characteristics of an internationalized state university Extension system. Delphi, a group process, utilized individual written responses to three researcher developed instruments. The process was further characterized by multiple iterations designed to accomplish convergence of opinion. The methodology was determined by the nature of the problem to be investigated and the time and cost restraints of bringing together the individuals needed to address the problem. Participants' anonymity was maintained during the three rounds of the study.

Panel Selection

Delphi operates on the principle that several heads are better than one in making subjective judgements about the future and that experts will conjecture based on rational judgements rather than merely guessing. The Delphi Panel members were purposefully selected following a nomination process. A total of 15 individuals, well known and respected for their contributions to Extension, land-grant colleges or universities in the area of internationalization were identified.

The participants selected by the review panel met at least three of the criteria established for selection. The criteria were: (1) national/international reputation; (2) familiarity with the topic; (3) conducted research, written or lectured on the topic; (4) considered to have a deep interest in the problem and important knowledge or experience to share. The Panel identified the degree to which they believed each item on the instrument contributed to the internationalization of a state university Extension system

Instrumentation

The initial instrument contained 39 position statements derived from the literature and structured interviews with international experts. A seven-point Likert-type scale was used with 0 indicating "no importance" and 6 indicating "critical importance."

Use of a content validity panel assured face and content validity of the initial instrument. Given the nature of the Delphi technique, additional types of validity and reliability estimates were not appropriate for the instrument. Reliability, a benchmark criterion for assessing the consistency of the instrument in measuring accurately whatever it sets out to measure, cannot be determined by conventional means in a Delphi study. Reliability-estimation procedures look at stability in measurement over time or across forms. Changing responses from one round to the next is encouraged as the Delphi Panel moves toward consensus. The instrument is modified in each round based on input from panel members. Reproducibility using the same approach with different experts could be considered to play somewhat the same role as reliability. Dalkey (1969) reported an increase in reliability of group responses with increasing group size. Reliability with a correlation coefficient approaching .9 was found with a group size of 13.

The Delphi Panel was asked to identify the degree to which they believed each item on the instrument contributed to the internationalization of a state university Extension system. A seven-point Likert-type scale was used. Delphi Panel members were asked to support their opinion with a rationale. Space was also provided for panel members to add new statements. Delphi Panel responses were incorporated in successive instruments. A total of fifty-one items were considered during the three rounds of the Delphi

Presentation of feedback is central to the operation of the Delphi. Feedback to participants has a tendency to move the Panel toward consensus. The study used a combination of statistical and verbal feedback. For Rounds II and III, a statistical summarizing for each item in the form of a frequency table and an anonymous listing of all comments made by panel members encouraged reassessment of initial judgements.

Data Collection

The Delphi instruments were mailed to the Panel using U.S. mail or air mail to international locations. A variety of techniques were used to ensure maintenance of interest and participation in the study.

Data Analysis

The computer program SPSS was used for data analysis. For each round, items on which consensus was reached were identified. Consensus on an item was considered to have been reached when 80% of the ratings fell within two categories on a seven-point scale. Frequency counts and percentages, along with the mode and median were reviewed in determining consensus. For each round, those items not meeting the criteria for consensus were included in the following round as well as new items generated from suggestions.

Following round III, statistics of central tendency and variability were calculated for all items on which consensus had been reached. The mean was used to describe the level of importance of the item to an internationalized state Extension system.

FINDINGS

The results of the study represent the collective opinion of the experts participating in the Delphi Panel at a single point in time and cannot be construed to be representative of any other population or situation. Fourteen of the 15 participants responded to each round, a 93% response rate. Fifty-one items were considered. Consensus was achieved on 38 items identified as having moderately high importance to critical importance for the internationalization of a state university Extension system. Table 1 reports the items where consensus was reached. Consensus was not achieved on thirteen items after three rounds. Comments made by the Panel during each round and reported anonymously provided additional information to describe the ratings and clarify issues. Three hundred and sixteen comments were received.

Following Kaufman's model (1982,1992), the results were categorized as organizational efforts and organizational results. Reported below are Efforts and Results that were identified as having critical or high importance.

Organizational Efforts include existing conditions that affect organizational activities as well as methods and procedures necessary for managing these activities. An effort of critical importance to the internationalization of Extension was recognition by Extension professionals of the relationship between international issues and the Extension mission. A commitment to international education as a part of the Extension mission, an organizational culture that expects international activity and administrators who communicate support for internationalization were viewed as highly important. International issues include: knowledge of international agriculture, commitment to human development, the debate on privatization of Extension and the experiences of Extension systems in seeking new ways of funding services. Financial support for internationalization activities and a person identified to provide leadership to internationalizing efforts were highly important.

A critically important effort was development of a personnel evaluation system which recognized international efforts. Highly important was having a reward structure that recognizes internationalization in its system of rewards. These rewards include merit adjustments, tenure, promotion and peer recognition. Staff development processes identified as having high importance included: interaction with scholars from other countries to increase faculty expertise, opportunity for international experiences for county agents and administrators and professional improvement activities designed to increase knowledge of global issues.

Organizational Results, according to Kaufman, include the products or programs/outputs developed and their delivery to stakeholders through educational programming efforts. The Result having critical importance to internationalizing Extension was clientele developing a fundamental understanding of global and national interdependence.

Other Results identified as having critical importance included: Educational programs offered in the United States that stress the impact of international economics forces on agricultural markets and Extension educators incorporating international perspectives into ongoing educational activities. Programs that help clientele understand complex worldwide issues and programs that train local business persons for participation in international markets were identified as having high importance. These programs might include having key leaders participate in interdisciplinary international experience. Highly important for Extension was targeting commodity groups for public policy education on global decision making and rural clientele for education on the international marketplace. Also, of high importance were Extension educators assisting communities in building a sense of responsibility for the wise use of natural resources in the context of global trends.

CONCLUSIONS

The study brought greater clarity and focus to the characteristics of an internationalized Extension system. Internationalization was not seen as a fourth dimension to the work of faculty in a land grant institution: teaching, research, service and international efforts. Instead, successful internationalization was identified as integrating global perspectives into the basic mission and mandate of Extension and each of the functions of teaching, research and service.

Five critical elements were identified by the Delphi Panel as present in an internationalized state university Extension system. The absence of any one of these critical elements would indicate that the Extension system could not be considered internationalized. These elements were:

- ◆ Clientele develop a fundamental understanding of global and national interdependence
- ◆ Extension educational programs within the U.S. stress the impact of international economic forces on agricultural markets
- ◆ Extension educators incorporate international perspectives into ongoing activities
- ◆ Extension faculty/agents recognize the relationship between basic international issues and the Extension mission
- ◆ Personnel evaluation systems recognize international efforts

From these critical elements a definition of internationalization was developed. It states:

Internationalization of Extension is the incorporation of international dimensions into Extension teaching, research and service assisting stakeholders to develop an understanding of global interdependence and competition.

IMPLICATIONS FOR PRACTICE

Eighty percent of Extension directors indicated their state either had achieved a low level or had not achieved any level of globalization in a study by Poston and O'Rourke (1991). For these Extension systems, internationalization will represent a significant organizational change. Identification of characteristics essential to an internationalized Extension system can help Extension leaders and university administrators to identify and focus available resources where the greatest impact can be realized. The results of the study are consistent with recent GASEPA (Globalizing Agricultural Science and Education Programs for America) recommendations from NASULGC and the International Committee on Organization and Policy. GASEPA (1998) identified five goals for incorporating an international dimension into teaching, research and extension programs. These include: (1) enhancing global competitiveness of U.S. Agriculture through human resource development; (2) development and dissemination of information about markets, trade and business opportunities; establishment of mutually beneficial collaborative global partnerships; (4) promotion of trade through global economic development; (5) promotion of global environmental quality and stewardship of natural resources management.

Discussed below are implications for: policy and resource decisions, targeting of stakeholders and staff development.

Policy and Resource Decisions

Extension leaders who provide a clear and enthusiastic sense of direction for internationalization will help to ensure concerted and sustained action. Appointing a person to support and coordinate internationalization of the Extension program and activities is a necessary implementation strategy as is incorporation of fiscal support into the ongoing Extension budget. The Delphi Panel did not view international experiences as critical characteristics of an internationalized Extension system, but high importance was placed on the organization

providing opportunities for faculty to work and pursue international assignments. Policy mechanisms that support travel abroad, professional leaves, international assignments or time/resources to develop curriculum should be considered. Incorporation of international expectations into position guidelines, reward of middle managers for fostering positive change toward internationalization and hiring candidates with international experience will enhance the human resource base of Extension. Finally, tied to the motivation of Extension educators to internationalize themselves and their program is recognition through the organization's personnel evaluation and reward system. The Panel viewed peer recognition as an integral element of any reward system developed. Extension leaders need to work with promotion and tenure committees to define international expectations.

Targeting Stakeholders

Extension educators have the responsibility to help clientele develop an understanding of global issues. Issues that should be targeted include: human health and wellness, environmental quality and stewardship, diversity, development of a safe and available world food supply, renewable resources, the agricultural market and development of leadership skills needed in a global society.

Extension has a unique role to play in helping traditional rural and agricultural clientele recognize the need for education on international issues and the relationship of trade and global economic development. Extension has typically tried to be responsive to local needs, but here a need exists that may be invisible to the general population and Extension needs to provide the leadership. As Extension expands to embrace the world, Extension must do it with local constituents, not for them. John Burman (1998), Vice President of Cargill, emphasized that understanding the importance of global markets is crucial for agribusinesses to remain competitive and rural communities to remain viable. Because of Extension's close tie with the agricultural sector, development and dissemination of information about markets, trade and business opportunities should be encouraged. Commodity groups could be targeted for public policy education on global decision making. Key leaders will benefit from interdisciplinary international experiences aimed at establishing mutually beneficial global partnerships and creating a greater awareness and understanding of global environmental concerns.

Staff Development

Extension educators need excellent technical skills, strong communication and people skills as they work with an audience who becomes more diverse each year. Global experience and attitudes increase in importance as universities target helping stakeholders to become globally competent. The Delphi Panel emphasized incorporation of international dimensions into domestic programs. One panel member explained: "one of the major problems with the successful internationalization of Cooperative Extension is the lack of recognition that international content and activities are an integral part of what clientele need. Instead the development assistance mentality prevails which continues to identify within Extension that international is something separate and different from what faculty are supposed to do. Faculty need to know and learn about the potentials of international programs and activities to enhance the quality, relevance and impact of their programs and responsibilities."

Extension educators must develop global knowledge and skills that can be transmitted to clientele through programming efforts. For some individuals, motivation and expertise development will come because of out-of-county opportunities. Most Extension faculty will not travel beyond U.S. borders so other methods must be identified. Staff development offerings could include: workshops, mentoring, developing of a resource library, hosting of international guests, or participation in self-directed learning. Development Extension educators' abilities to incorporate international perspectives into ongoing programs requires more than a brief study tour to another country or a single workshop. Having a small grants program to foster individual development or the infusion of international modules into existing programming is suggested. Policy mechanisms that support travel abroad, professional leaves, participation in Fulbright programs and international assignments will further enhance efforts to internationalize the curriculum. Creating linkages with corporate America to strengthen partnerships and with international universities should be investigated.

FURTHER STUDY

One outcome of the current study was the generation of additional questions and avenues for research. Replication of the current study is suggested. Substituting the more current term of globalization for internationalization should be considered. Identifying characteristics of state Extension systems that by reputation are internationalized and comparison to the critical elements identified in the study should be undertaken. Identifying factors which stimulate an uninvolved Extension system to begin the process of internationalization could be studied. Researchers could also identify barriers to Extension involvement in internationalizing and approaches taken to overcome barriers.

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Table I
Characteristics Having Importance to Extension Internationalization

Item	Mean	SD	Category
Clientele develop a fundamental understanding of global and national interdependence.	5.85	.38	R
Extension educational programs within in the U.S. stress the impact of international economic forces on agricultural markets.	5.69	.86	R
Extension educators incorporate international perspectives into on-going educational activities.	5.54	.66	R
Extension faculty/agents recognize the relationships between basic international issues (e.g. knowledge of international agriculture, commitment to human development, significance of privatization)and the Extension mission.	5.54	.66	E
Personnel evaluation systems recognize international efforts.	5.50	.76	E
Key leaders participate in interdisciplinary international experiences.	5.36	.74	R
Sensitivity to diversity issues by Extension clientele is enhanced.	5.36	.63	R
Reward structure recognizes internationalization in its system of rewards. These include merit adjustments, tenure, promotion, and peer recognition.	5.31	.63	E
Financial support for internationalizing activities is available.	5.21	.43	E
Administrators clearly communicate support for internationalization.	5.14	.66	E
A person(s) is identified to provide leadership to internationalizing efforts.	5.14	.53	E
International experiences are provided for county agents who do not have faculty status.	5.08	.64	E
Policy and operating procedures facilitate international program efforts.	5.07	.62	E
The organization culture expects international activity.	5.07	.62	E
Extension educators assist communities in building a sense of responsibility for wise use of natural resources in the context of global trends.	5.07	.62	R
Faculty increase their expertise by interacting with faculty and scholars from other cultures.	5.07	.47	E

Human and physical resources are allocated to support the integration of international activities in the overall institution effort.	5.07	.47	E
Opportunities for international experiences are provided for administrators.	5.00	.55	E
The central mission of the Extension system includes a commitment to international education.	5.00	.55	E
Professional improvement activities increase knowledge of global issues.	4.93	.47	E
Extension is involved with international development activities.	4.93	.92	E
Local business persons are trained for participation in international markets.	4.93	.62	R
Specific groups (i.e. commodity groups) are targeted for public policy education on global decision-making.	4.86	.66	R
The organization's best junior faculty/agents are identified to participate in overseas assignments.	4.86	.36	E
Administrators engage in experience which will internationalize their own professional lives.	4.86	.53	E
Regular encouragement/accommodation of visitation by scholars from other countries occurs.	4.86	.66	E
Proposals for international work are developed and funded.	4.77	.44	E
The organization's best senior faculty/agents are identified to participate in overseas assignments.	4.64	.63	E
Exchange programs with extension organizations in other countries are institutionalized.	4.64	.74	E
Rural clientele are targeted for educational programming related to the current international marketplace.	4.64	.74	R
Educational programs planned by Extension help clientele secure a better understanding of complex	4.57	.76	R

worldwide issues.

Extension educational programs offered to 4-H members help develop international awareness.	4.57	.76	R
Educational programs increase participant's understanding of other cultures.	4.57	.76	R
A committee(s) is established to guide internationalization efforts.	4.57	.65	E
Exchange programs with extension organizations in other countries are planned and conducted on an on-going basis.	4.50	.65	E
Training programs are provided for foreign immigrants living in the United States.	4.50	.52	R
Urban clientele are targeted for educational programming related to the current international marketplace.	4.50	.65	R
Extension clientele interact with visiting scholars and students to become more globally aware.	4.31	.75	R

Scale: 0 = No Importance; 1 = Slight Importance; 2 = Limited Importance; 3 = Moderate Importance; 4 = Moderately High Importance; 5 = High Importance; 6 = Critical Importance
 Categories: E = Organizational Effort; R = Organizational Result
 Note: Round 1: N = 14; Round 2: N = 13; Round 3: N = 14

SCHOOL-TO-WORK CURRICULA IN THE MIDDLE SCHOOLS: BENEFITS, ISSUES, AND CONCERNS

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ABSTRACT

School-to-Work (STW) activities have often been conducted with little knowledge about what to include in curricula and what the impact should be. The study addressed these concerns and issues, building from the Turning Points framework that documents a mismatch between middle school curricula and young adolescents' needs. Questions focused on curriculum implementation and focus, benefits to students, and implementation issues and concerns.

The research method was qualitative with interview protocols used to gather information. A call for comprehensive, long-term STW middle school locations resulted in nominations of 36 middle schools representing 16 different states. Contact persons at 28 of the 36 middle schools were interviewed. At six of these 28 middle schools, interviews were also conducted with 3 to 5 others including at least one principal, one counselor, and one teacher.

Enhancing curriculum relevancy, better serving needs of at-risk students, enhancing student development, developing career awareness, supporting systemic change and reform, building community linkages, and improving transitions were reasons for establishing STW curricula. Some interviewees offered conceptual reasons for implementing curricula. Several saw the curriculum as an excellent fit with middle school philosophy. A small number of organizational/operational reasons for implementing STW curricula were mentioned. Curricula focused on five areas: career exploration and awareness, self awareness, contextual learning, service learning, and integrated themes. Regarding curriculum determination, several educators indicated a broad net was cast to capture curriculum content. The range of benefits provided to students underscored contributions STW experiences made to young adolescent development. Educators noted the curriculum enhanced students' personal development in individual growth, self understanding, confidence, self-esteem, and motivation and responsibility to learn.

OVERVIEW

Even though middle schools have existed for over 40 years, they are considered by many to be a relatively new phenomenon. And what motivation existed for establishing middle schools in the first place? Kindred, et al. (1976, 3-9) described the growth of the middle school movement as a function of six interrelated areas: dissatisfaction with the junior high school, changes in young persons' maturity patterns, new educational ideals, developments in learning theory, innovations in educational methods and materials, and changes in society.

At that time, junior high schools were viewed as not providing broad exploratory and transitional experiences appropriate to adolescent students' needs and interests. Over the years, middle schools replaced junior high schools to the point where a relatively small number of junior high schools still exist (Epstein, 1990). However, the other five growth areas noted by Kindred et al. in 1976 continue to evolve and in doing so present a contemporary frame of reference for discussions focusing on what middle schools should and should not be. Young people continue to mature at more rapid rates and thus provide middle school educators with continuing instructional challenges (National Middle School Association, 1995). Different philosophies of middle school education continue to be discussed and debated (Dougherty, 1997). Learning research has provided middle school educators with much valuable information and, concurrently, raised a number of questions about how middle school students' needs should be met (for example, see Anderman & Maehr, 1994). Innovations, particularly in the computer and electronic communication areas, have been touted as being important for students to learn so they will be prepared for life in our technological society. However, many middle school students are not afforded opportunities to learn about these innovations (Becker, 1990). And societal changes, such as evolution of the United States from a national economic powerhouse to being part of a global economy, have raised questions about what work-related education if any should be included in the middle school curriculum.

SCOPE AND PURPOSE

This paper focuses on a subset of middle school education that connects with each of the evolving areas introduced above: School-to-Work (STW) opportunities in the middle school. Over the past decade, increasing numbers of senior high school educators have provided comprehensive and meaningful STW opportunities for their students. Unfortunately, these STW opportunities may be offered too late in some high school students' studies to have much impact on them. By the 9th or 10th grade, many students have already become turned off to education and have decided to quit school or just comply with minimum requirements for graduation. Other students may not have received much parental and peer encouragement to study and/or do not view schooling as an avenue to future occupational and career success (Kennedy, 1996; Lichtenstein & Blackorby, 1995). In response to these and other concerns, a number of school districts across the United States have created School-to-Work opportunities for middle school students. Examples range from including career exploration activities in individual middle school courses to school- and school district-wide incorporation of School-to-Work opportunities in the curriculum. In some school districts, educators are providing middle school students with

meaningful experiential learning related to occupations and careers (Schmidt, Finch, & Moore, 1997).

Although educators are gaining experience at implementing school-to-work (STW) opportunities in the middle school, these activities have been conducted largely on an ad-hoc basis with little knowledge about how and why they should be included in the middle school curriculum as well as the impact they are designed to have on students. This study was conducted to address these concerns and issues, building from the *Turning Points* (Carnegie Council for Adolescent Development, 1989) framework that documents a mismatch between middle school curricula and young adolescents' needs. Within the middle school context, answers were sought to a series of questions that were posed to middle school educators who had implemented STW curricula in their schools:

1. Why have STW curricula been implemented including conceptual, organizational, and operational reasons?
2. What are the foci of the curricula and how were they determined?
3. What benefits do the curricula provide to students?
4. What issues and concerns are associated with implementing STW curricula at the middle school level?

FRAMEWORK

Since 1963, when the middle school concept was first introduced by William M. Alexander, educators have been searching for ways to embrace it. Middle school theory surmises that early adolescents' academic, social, and emotional needs are better served by an educational experience not found in the elementary or high school environments. Some middle-level schools have been restructured and transformed to provide the appropriate learning environment that assists young adolescents to meet their potential, and provide a meaningful place for young people in an adult culture. Steps for accomplishing this change have been outlined in *Turning Points: Preparing American Youth for the 21st Century* by the Carnegie Council on Adolescent Development (1989), and have been widely disseminated as a national "blueprint" in restructuring efforts. These steps include the following:

- "create small communities for personalized learning (small schools or small programs within larger schools)
- create successful experiences for all students by eliminating tracking and promoting cooperative learning
- give teachers and administrators decision-making power concerning curriculum and instruction
- employ teachers who like, respect, and appreciate adolescents
- employ teachers who are experts in teaching young adolescents

- improve academic performance through fostering health and fitness of young adolescents
- encourage family involvement in the education process
- connect middle schools with their communities (p. 9)”

The authors of *Turning Points* noted that middle schoolers need to become “socially competent individuals” who are able to cope successfully with everyday life. They need to believe that they have promising futures and the competence to take advantage of societal opportunities when they arise.

Unfortunately, many middle schoolers “lose ground” academically during this period. Theory suggests the declining academic achievement that commonly plagues adolescents may be directly related to “the mismatch between the developmental needs of the students and the educational environment” (Mac Iver, 1989). In turn, providing young adolescents with a combination of both challenging and nurturing experiences in appropriate settings can strengthen the possibility of them becoming more effective academic and social participants. Substantial evidence can be found of a relationship between young adolescents’ perceptions of the classroom environment and their achievement and attitudes (Dougherty, 1997).

It was emphasized in *Turning Points* (Carnegie Council on Adolescent Development, 1989), that a tremendous mismatch existed between middle grade curriculum and the needs of young adolescents. As Felner, et al. (1997a, p. 521-522) stated, *Turning Points* has provided educators with “comprehensive and researchable constructs and exemplars of those constructs to undergird their reform efforts.” In fact, the eight major recommendations for reform provided in *Turning Points* (cited earlier) served as a framework for the long-term evaluation of a model for high performing learning communities (Felner, et al., 1997b). The *Turning Points* framework, likewise, served as a framework to guide this study; particularly regarding ways middle schools utilize school-to-work/careers curricula to reduce the mismatch between the middle school curriculum and students’ needs.

METHOD

The research method was qualitative, with telephone interviews serving as the information gathering process. Interview protocols were developed to gather in-depth information from middle school educators. Concurrently, locations where comprehensive, long-term STW opportunities were being provided for middle school students were identified. State STW coordinators, selected association representatives, and VocNet listserv subscribers were asked to nominate middle schools where comprehensive, long-term STW curricula had been established. Nomination criteria defined middle schools that (a) had a fully operational, successful school-to-work/careers program, (b) were graduating students from the program, (c) had effective linkages with high school school-to-work/careers efforts as well as the workplace and the community, and (d) had a long-term commitment to STW transition at the school-district level. 36 middle schools representing 16 different states were nominated. Contact persons available at 28 of the 36 middle schools were interviewed to gather detailed information about their curricula. The remaining eight schools either did not meet selection criteria or their representatives were unavailable to complete the interview within the time constraints of the

study. At six of the 28 middle schools, interviews were also conducted with 3 to 5 additional persons including at least one principal, one counselor, and one teacher. Taped information gathered during the in-depth interviews was transcribed for comprehensive analysis using *The Ethnograph* (Qualis Research Associates, 1990). This software provided us with the capacity of coding, grouping, and regrouping information according to predominant and underlying themes.

FINDINGS

Middle school personnel that were interviewed responded to questions concerning four areas: (a) reasons for the implementation of a middle school STW curriculum; (b) curriculum focus; (c) ways the middle school STW curriculum contributed to student success; and (d) issues and concerns that have been voiced about implementing a STW curriculum at this level. Examination of interviewee responses resulted in the categorization of interviewee responses for each question. Descriptions of these categories are presented. Selected responses made by principals, academic and vocational teachers, STW coordinators, guidance counselors, school administrators, and others are included to assist in describing the nature of each category.

Why Implement School-to-Work Curriculum?

Reasons given for implementing a middle school STW curriculum were distributed into seven categories including Enhancing Curriculum Relevancy, Serving At-Risk Populations, More Effectively Enhancing Student Development, Developing Career Awareness and Career Exposure, Supporting Systemic Change and School Reform, Building Community Linkages, and Improving the Transition to High School and Beyond.

Enhancing Curriculum Relevancy

The most frequently cited reason for implementing a middle school STW curriculum was to help students make a connection between school learning, the workplace, and future living. Several interviewees indicated that middle school students generally do not connect the classroom and the "real world", and that middle level educators needed to find more creative and innovative ways to answer the question, "Why do I need to learn this stuff?" Interviewees indicated that in order to bridge the gap between schooling and the workplace, instruction and classroom activities must link career experiences and academics in relevant ways. Curriculum content must be viewed by students as having a meaningful and lasting connection to their lives. Interviewee responses also revealed that for curriculum to be relevant, it must be realistic. The STW approach was viewed as a way to "give the content a context" that "gives validity to what we do as educators." One technology director stated:

We really felt like, even at this age, that some kids were having some difficulty seeing the correlation between what was going on in the classroom and what was going on in the world of work. And some of the kids do not see the relevance for getting an education and studying the things that we study in our curriculum. Giving kids the opportunity to get into the workforce and see how various language arts skills and mathematics skills and science skills are being applied, really seemed to make sense. We felt that it would really give them a good understanding as to what education was all about.

Since the STW curriculum was viewed as being relevant, realistic and meaningful, many interviewees concluded that this approach would be motivating to the students. Motivation, or perhaps, lack of motivation, was frequently mentioned as a reason for implementing a School-to-Work curriculum. This curriculum approach was considered motivating because it was “hands-on”, innovative, active, interactive, and allowed students to visualize the end results.

Serving At-Risk Populations More Effectively

Many interviewees stated that their STW middle school programs were implemented, at least in part, as an alternative education program or a drop-out prevention strategy for at-risk students. The STW program was also viewed as a way to individually address learning styles and interests, ability levels, self-esteem issues, motivation issues, and remediation needs. It should be noted that several sites considered special populations to include not only the traditionally defined “at-risk” students, but also gifted and talented and nontraditional students. STW curriculum was viewed at several sites as a way to address gender equity issues and eliminate tracking in certain career paths. According to one guidance counselor:

It kind of grew out of a need of a way to communicate with some of the special needs students that we had here. We started to find that working with at-risk students using “learn and earn” and School-to-Work job experiences, job shadowing and so forth, had a lot of meaning for these students. This was an area that they were probably deficient in because positive working relationships weren’t always modeled at home for some of these students.

Enhancing Student Development

Two concerns were identified within this category: developing personal awareness and developing work-related skills. Personal awareness development was commonly cited as a reason for implementing a middle school STW curriculum. Interviewees referred to planning a purposeful and developmental STW program that addressed the areas of personal responsibility and dignity, self expression, self-knowledge, and self-discipline. One junior high school principal felt STW education allowed students to determine “where they see themselves in relation to others and as an individual.”

Others focused on using STW education to enhance work-related skills such as, future goal clarification, informed decision-making, team building and problem-solving, collaboration, critical thinking, and leadership. One junior / senior high school principal believed STW education “allows kids to explore as many options as possible and helps them in making well-based decisions about what they want to be when they grow up.”

Developing Career Awareness/Exposure

Both career awareness and career exposure were frequently cited as key reasons for implementing a STW curriculum. Interviewees felt it was important for middle school students to “see what’s out there beyond the school walls.” Several interviewees commented on the need to expose students to a variety of occupations, not just the more common ones. In addition, interviewees were concerned that schools were not able to keep up with changes in the business

world and that work-based opportunities could help by exposing students to “real world applications and experiences.”

Interviewees at several sites also addressed developing the teacher’s career awareness as part of their STW agenda. Teachers were exposed to a variety of occupations and career curriculum options through summer externships, worksite visits, on-the-job experiences, shadowing activities, conferences, resource library materials, weekly meetings, and specific training sessions. These experiences were expected to impact the teacher’s instruction, curriculum implementation, and assessment practices. Out-of-school opportunities were intended to “train teachers how to weave School-to-Work ideas into their daily curriculum” and “change the teacher’s way of thinking about relating instruction to the workplace.”

Supporting Systemic Change and School Reform

In addition to enhancing career awareness, interviewees saw the STW program as a vehicle to long-lasting and systemic change, a way to build a foundation for establishing a seamless, streamlined, comprehensive system. Some sites described their schools as “in crisis” and were using the STW approach as one of many strategies for initiating and sustaining school reform. Several respondents also discussed the need for a comprehensive, developmental guidance delivery system that included both career guidance and work-based learning activities for all students. Interviewees at several sites commented on attempts to revise, renovate, and refocus their career exploration programs to emphasize School-to-Work issues. The intention of this emphasis was on linking career experiences with both guidance and academics.

Building Community Linkages

The concept of community emerged as a dominant reason for implementing a middle school STW curriculum. In fact, several sub-categories noted in this category included (a) building community/business linkages, (b) addressing business/ industry/community concerns, (c) supporting local economic development, and (d) encouraging student participation in the community.

Strong business and industry linkages were viewed as a vital part of the STW curriculum since worksite experiences and workplace understanding are essential ingredients for future success. Interviewee responses suggested that linking with the community was a two-way process. Schools attempted to address community, business, and parent concerns by surveying and assessing their needs and forming task force committees and partnerships to help determine avenues to successful improvement. Some sites tried to “align curriculum based on research from employers.” However, in return, schools expected the community and business members to become actively involved in the education of their young people. The business community needed to “help prepare students for the workplace, address the skills not being addressed in school, and make educators aware of workplace needs.” Many interviewees viewed the business community as willing but apprehensive participants in this process.

Linkages were developed primarily in response to concerns voiced by employers and community members in neighboring areas. A STW curriculum was seen as

addressing the needs of very economically depressed areas, often preparing students for more skilled jobs since the local area had lost its unskilled employment base.

In other instances, entrepreneurship was encouraged as one way to provide local work experiences for the students, bring new businesses into the community, and encourage graduates to stay in the area or return to the area to live. Entrepreneurship was also seen as a viable way to encourage students to expand their career options and aspirations, or as one STW program coordinator stated, "to think beyond I want to be a farmer."

Community involvement and service were frequently cited as reasons for implementing a STW curriculum at the middle school level. School personnel at several sites felt it was important to "help kids understand who they are in a community and to develop a sense of place in that environment." Interviewees commented that middle school students often feel people don't care about them and that they needed to consistently see that those in the community cared about their futures. The STW curriculum was viewed by one rural site community education director as "an opportunity to learn IN the community and contribute TO the community through community development projects." In addition, STW can "give the community a more real perception of what goes on in schools."

Improving the Transition to High School and Beyond

Several interviewees indicated that middle level educators must help to ease the transition into high school by providing a "continuum of services that link and build on previous experiences" and assisting students in "speaking the language of the high school." Middle school personnel discussed becoming partners with the high schools in a long-term process, indicating a need to examine how middle school activities and learning can influence high school decisions. A guidance counselor commented:

I think the middle school [STW] curriculum really allows students, while they're in middle school, to get a good sampling of everything that's offered in high school so they can base their decisions on first-hand knowledge and experiences rather than hearsay or reading it in a booklet.

Middle school was seen by many interviewees as a time when serious decisions about the immediate future needed to be made. In some cases, eighth graders were required to choose a high school based on its occupational focus or college preparation program and apply for admittance. Others needed to enter high school having identified a career cluster of interest and a four year plan of study.

A majority of respondents indicated their STW programming was an effective alternative to traditional tracking because it increased the students' achievement and exerted a more positive impact on the personal development of students with learning difficulties or delays. STW curriculum was seen as more readily adaptable to the pace and level of instruction needed for certain individuals. A STW coordinator commented on the ability of this curriculum to "target the actual needs of students and therefore, motivate them more effectively."

Although middle level educators interviewed saw the importance of preparing students for high school, most indicated a wider reaching influence. Interviewees indicated that STW

programs at the middle school level would develop students who were better prepared for post-high school education and careers in the future. An executive director of professional technical education stated that his district focused on providing a “smooth transition for students from school to school, school to post secondary opportunities, and school to work”, and that they intended to assure their students “learn more about the requirements, skills and benefits of a full range of career options and opportunities to help prepare them for the future.”

Preparation for future work was frequently cited as a reason for implementing the STW curriculum. For example, one rural school principal insisted, “We have been too academically inclined. We must look at each student as a future worker.” Some respondents specifically addressed the need to prepare students to live in a technical world and to “provide training for the high tech workplace.” STW education was seen as an avenue to expose students to a wide range of technological careers and encourage interest in technology opportunities.

Conceptual Reasons for Implementing the Curriculum

Over half of the interviewees had no known conceptual reasons for implementing the STW curriculum. However, several respondents referred to the middle school philosophy and the Carnegie *Turning Points* as their conceptual basis for adopting a middle school STW curriculum. Some interviewees indicated that STW educational reform would advance the middle school agenda by “embedding basic skills into a thought-provoking curriculum” and “providing a holistic approach to the child.” At some sites, interviewees saw the STW initiative and the middle school philosophy as “a total fit” for this age group since their real task was to help the student transition from a child to a young adult. A science and technology magnet school principal explained the alignment between the two.

It [STW curriculum] is very interactive, synergistic, and relevant to “real life”. It opens doors to new ideas, builds a full range of communication, uses multiple intelligences, develops thoughtful citizens, provides opportunities for service, accommodates special needs, assesses strengths and weaknesses, produces life long learners, and focuses on a moral and democratic society. Isn’t this what the middle school philosophy states?

Some questioned the compatibility of the two concepts. One rural site principal commented, “The liability of the middle school philosophy is you become more elementary in nature. The needs of adolescents are just human needs. It’s never too early to address future needs.” Another rural school principal stated, “School-to-Work and *Turning Points* are not congruent. *Turning Points* philosophy de-emphasizes academics and works on affective behaviors. We don’t buy into this.”

In addition to Carnegie’s *Turning Points*, several interviewees cited specific sources as conceptual reasons for implementing the School-to-Work curriculum. These included the SCANS competencies, National Career Development Guidelines, local and statewide learning standards for excellence, Equity Outcome Guidelines, Microsociety concepts, and state educational reform acts.

Organizational/Operational Reasons for Implementation

One third of the interviewees noted organizational or operational reasons for implementing a STW curriculum at their site. Interdisciplinary teaming was most often cited as the organizational reason for implementing the STW curriculum at the middle school level. The teaming concept allowed for greater infusion of career materials and information across the different teaching areas. A suburban school principal saw teaming as a way to “encourage career infusion and integration by teachers.” Some sites referred to the career cluster organizations and block scheduling at area high schools as reasons for organizing their curriculum in a similar or complementary fashion. Others felt the STW curriculum supported the nature of a small school or school-within-a-school (academy) structure.

The Curriculum Focus

A review of interviewee responses concerning the curriculum focus revealed five categories of responses. They included Career Exploration and Awareness, Self Awareness, Contextual Learning, Community-based and Service Learning, and Integrated Themes.

Career Exploration and Awareness

One of the main focuses of the STW curriculum at the middle school level was career exploration and awareness. Curriculum activities and experiences were designed to “catch the interest of the students” and “expand their horizons.” Students were encouraged to evaluate their individual interests and abilities and build goal setting and decision-making skills through career exploration participation. Interviewees indicated that students were carefully guided through these developmentally appropriate experiences that focused on “exploring the world of work.”

Self Awareness

Student self awareness was also frequently mentioned as a curriculum focus. According to one academy principal, participation in the STW exercises would “create awareness of individual talents and build generic skills such as, problem-solving, decision-making, negotiating, finding resources, and working with others.”

Contextual Learning

Some interviewees felt strongly that the focus of the STW should be on real life community and workplace experiences rather than simply exploration. They indicated that the information and workplace skills learned in the classroom needed to be applied in actual workplace settings, in other words, to “connect basic learning with practical application.” A district administrator stated, “the School-to-Work implementation focus is the actual fusion of related skills into the curriculum and the actual practicing of those skills in career experience opportunities.”

Community-based and Service Learning

Several sites indicated community-based learning and/or “service learning” as an integral part of their STW curriculum focus. Most interviewees viewed community-based learning as a

way for students to build respect for themselves and acquire a stake in their community. Community-based activities such as clean-up projects and community safety campaigns, Interviewees indicated service learning activities helped to “develop a sense of civic responsibility” and “channeled energy into helping solve local problems”. Service learning activities were integrated into the academic curriculum and enhanced what was taught in school by extending student learning beyond the classroom. A district executive indicated that her school focused on service learning because it “encouraged volunteerism as a way to explore the reality of jobs.”

Integrated Themes

Many of the respondents indicated that STW education itself provided the focus for their academic curriculum. STW was not viewed as a separate curriculum, but carefully embedded within their daily routines. STW education was seen as a way to “reinforce the classroom curriculum” and “focus on continuous progress.” One principal, referred to his school’s curriculum as having a “school-to-life focus with a very integrated scope and sequence.” Some sites developed specific curriculum themes that heavily focused on STW content. For example, technology, medical careers, legal careers, economics, manufacturing, and entrepreneurship.

Determining the Curriculum Focus

Interviewees discussed several ways in which the STW curriculum focus was initially determined in their locality. These processes included faculty brainstorming, student input and selection, area needs assessments, community “conversations”, trial and error, individual teacher initiatives, and soliciting advice from those localities with past experience. These selection processes ranged from simple, unstructured in-house discussions to highly structured community-wide efforts. A rural site administrator discussed how themes emerged from a number of activities designed to discover a community’s concerns and priorities.

... People were just talking a lot about what it is we need to do to create good teaching and learning environments for students. A lot of our priorities were changed within our district through a variety of these conversations and themes really have emerged in part from that, and part from individual teacher initiative and various expertise. We didn’t adopt it from anywhere else. It was an internal organic process.

Many of the site respondents indicated that the curriculum focus or themes were constantly “under construction” and “always evolving.” Efforts were being made to keep up-to-date and anticipate possible roadblocks and new avenues of interest.

Benefits the Curriculum has Provided to Students

An examination of interviewee responses concerning the benefits their middle school STW curriculum had provided to their students revealed seven categories of responses. These categories included Connected Classwork and the “Real World,” Enhanced Student Personal Development, Improved Student Behaviors and Attitudes, Strengthened Business and

CommunityLinkages, Strengthened Existing Academic Curriculum, Served Special Populations Needs, Prepared Students for the Future.

Many of the benefits related directly to reasons previously mentioned for having implemented the STW curriculum. In other words, students appeared to have benefited in ways that educators had hoped they would. However, some of the other benefits mentioned such as, “improved student behaviors and attitudes” and “strengthened academic curriculum”, were not specifically mentioned as reasons for having implemented the curriculum. These seven categories are not mutually exclusive and thus may have some overlapping characteristics.

Connected Classwork and the “Real World”

A majority of respondents indicated that the number one benefit derived from the STW curriculum consisted of opportunities for students to apply what was learned in the classroom to real life situations, settings, and problems. STW activities and experiences were viewed as beneficial because they were “realistic”, “relevant”, and “meaningful” to the students. This “connection” with reality was seen as not only between the classroom and the workplace, but between the classroom, the community, and students’ future goals. One inner city school principal shared her overall view.

They [students] begin to see the connections between what they do, what they learn, what they produce, and what opportunities are available to them. The major issue would be that there’s real life application; real-life application of values, real-life application of what do we think a good society ought to have, and how do we support that, and a real-life application for the various academic areas that one is studying.

Enhanced Student Personal Development

Interviewees revealed that one of the major benefits of implementing a STW curriculum for middle schoolers is that it appealed to the students at their developmental level. This curriculum had more “personal meaning” for the students. One inner city school principal elaborated on this point, “It empowers them, and what we know is that children at this age need to feel that their voices are heard. It also addresses the issues that are germane to a young adolescent.” This opinion was echoed by a rural site administrator. He said:

I think junior high students are particularlylooking to try and make sense of what it is they’re studying and of their world and their place in the world. They are really eager to connect with the real world and some of the issues that are going on in the world and the stories that are happening in the world. So curriculum projects, project-based learning, hands-on learning, service learning, learning connected to the community in some way are really important to them.

Several respondents indicated that the STW curriculum helped the students to: (a) build meaningful relationships with adults and peers; (b) improve in their ability to work as members of teams; (c) grow in self understanding, sophistication, patience, self-esteem and confidence. Students were able to “reflect on and think critically about their experiences” and “recognize the intrinsic value of education and of success and the work ethic.”

Improved Student Behaviors and Attitudes

Frequent references were made to the STW curriculum's direct and positive effect on student behavior. Interviewees had witnessed an *increase* in active learning behaviors such as, asking questions, participating in discussions, task engagement, and attendance. A few schools specifically stated that they had seen a "steady rise" in standardized test scores for those students involved in the STW curriculum. Improved behavior and attitude adjustment were also evident to educators because of the *decrease* in truancy, delinquency and discipline referrals, social service interventions, arrests, insolence toward adults, and general "acting out." Positive behavior and attitude changes were also witnessed by school personnel outside the classroom.

Strengthened Business and Community Linkages

Interviewees indicated businesses and industries that had invested time, personnel, and funds in the career component of the STW curriculum were beginning to re-evaluate their initial apprehensions about the program and middle school students. Interviewees also noted that over time businesses, industries, and community agencies offered more extensive and varied first-hand worksite experiences for both the teachers and the students. In addition, businesses provided more reliable and more involved adult worker role models and mentors for the students. Participating businesses were also eager to recruit new businesses into the STW program.

The STW curriculum was viewed by many respondents as beneficial because it provided a venue for parents, teachers, and community members to "talk the same vision and goals." The curriculum was seen as a way to bring the community into the schools and the schools into the community. One rural site administrator extended this idea to include the building of a participatory culture. He said:

I think there's a cultural change here, the way we think about our community. I think there's this idea of community building within the school and being active players in a community building process. I think that's really the heart of how our teachers and a growing number of parents and students are starting to think about school and our community. People are telling us there's something that's working there. I don't think it's just the curriculum, it's a culture that's emerging.

Strengthened Existing Academic Curriculum

One of the benefits commonly expressed by the interviewees was how the STW curriculum focus had strengthened the academic curriculum currently in place in the schools. The STW focus was said to incorporate traditional educational experiences and values with innovative techniques and methods. One academy principal referred to the curriculum as a superior way of "integrating theory, practice, and hands-on activities." Interviewees indicated that the STW focus benefited students by "tying our current curriculum to something that's important to students" and because "it's a curriculum that makes sense to the kids." Teachers from several schools commented that students were drawn to this STW curriculum focus because of its "realistic", "different", "more involved", and "experiential" approach to learning. Other interviewees recognized the STW curriculum as having benefited students by providing an

increased depth and breadth of information and experience, when compared to the traditional curriculum.

Served Special Populations Needs

Another benefit commonly cited by interviewees was that the STW curriculum assisted educators in providing a more appropriate and comprehensive curriculum for certain special populations, specifically educationally or economically “at-risk” students and minority students. A career counselor discussed several of the benefits “at-risk” students receive through participation in a STW middle school curriculum.

I think there are some benefits forat-risk kids. A lot of at-risk kids have relatively small spheres of experience and [the STW activity] gives them an opportunity to get out into places that they’ve never been before, to see what other people are doing. I think it gives them an opportunity to see models in the community that they don’t typically see.

Other interviewees commented on the curriculum’s positive effect on minority students in their schools. The STW curriculum was viewed as a way to “pull minority populations together” and to provide minority students with “new ways to view their futures.” One administrator of a predominantly minority school stated, “...the kids learn about each other’s background and how to be sensitive.”

Prepared Students for the Future

Interviewees indicated in their responses that middle level students benefited from a STW curriculum because it better prepared them for high school, post-secondary education, the working world, and adult living. Responses indicated that the STW curriculum prepared students for these future settings and situations by “opening their eyes” and “opening their minds” to all the options and occupations available and the “path” commonly taken to achieve certain desired outcomes. The STW curriculum was seen by some interviewees as a workforce preparation program but not in the sense of having middle level students decide on a future career at this young age. Instead, the curriculum was meant to expose students to many different careers and “help and guide them in eventually choosing a career based on their values, personalities, and abilities.”

Several interviewees from larger cities emphasized the need to prepare students at a younger age (middle school level) because eighth graders in their districts were required to select and apply to individual high schools based on their personal career interests and the schools’ career themes. A city district administrator explained how middle school students were benefiting from their career pathway/STW model. He said:

...they [middle school students] enter high school with a better focus of what they are interested in studying. They are seeing that accountability and teamwork are critical to work in the high school instructional environment. Regardless of whether these students go on to college, to further training, or enter the workforce directly, middle school students enter the high school being prepared to succeed by working with “real world” application in their education.

Implementation Issues and Concerns

Interviewee responses on issues and concerns that have been voiced about implementing a STW curriculum at the middle school level could be grouped into four categories of responses. They included Participant “Buy-In,” Program Logistics, Resources, and Program Quality and Outcomes.

Participant “Buy-In”

Interview responses indicated that adults who would potentially be participants in the STW curriculum effort (teachers, parents, guidance counselors, community members, and business representatives) needed to be “sold” on the idea of STW for middle level students. Students appeared to be the only stakeholder group that did not exhibit initial resistance to and apprehension about the curriculum. Classroom teachers were overwhelmingly the most reluctant curriculum participants. Many classroom teachers originally viewed the STW curriculum as a “fad” or “just one more thing” but in due time came to recognize its value for their students. Those educators “selling” the curriculum needed to show reluctant teachers how it was an on-going, integrated process that would change the way they taught. Teacher concerns lessened as they became more familiar with the integration aspect of the curriculum.

Another issue raised concerning teacher “buy-in” was the concept that the STW curriculum was intended to be integrated into all subject areas and therefore was meant to be implemented by all teachers, academic and vocational. Traditionally, this career focus was strictly a vocational teacher’s or counselor’s domain and responsibility. Interviewees indicated that academic teachers needed additional convincing that career concepts were applicable and valuable to their class content and goals.

Some sites had STW programs that encompassed only a portion of the students in a school. This arrangement led to another teacher “buy-in” issue. Teachers working within the STW programs were often specially chosen for their positions and were enthusiastic about the career integration notion. However, teachers working outside the program were often unfamiliar with the innovative methods used to stimulate learning and resented the commotion it caused in the school environment.

While the majority of interviewees indicated that parents of students in the STW curriculum were pleased with its conception and implementation, respondents did acknowledge some minor concerns on the part of individual parents. Some parents were concerned with the number of field trips and time spent outside the school building. Others were concerned about the possibility of the STW / careers programs “tracking” their children into a particular career path at too early an age. This concern appeared to be more prevalent in schools that did not provide STW opportunities for all students.

Community members voiced some opposition to the teaching and learning methods used in the STW curriculum. Interview responses revealed that a majority of the community members were very supportive of the out-of-school student experiences and ingression into the community and business world. However, other community members were adamant about maintaining the “status quo” and retaining “the way it was.” Interviewees revealed that there had been some

“detractors” who felt the STW curriculum was strictly a high school and beyond initiative. These community members believed the time and resources used to put students in the workplace would be better spent when the students were older. Several interviewees commented that they had anticipated a greater outcry against the STW initiative from certain groups of individuals in their community.

Interviewee responses indicated that members of the business community were very supportive of the concept behind STW for the middle level student but very apprehensive about the student’s educational and emotional maturity levels. Most of the business participants had never worked with middle school students and did not know what to reasonably expect. Business members were also very concerned about the worksite safety and liability issues surrounding a program for underage “workers.”

Program Logistics

Many of the concerns voiced by curriculum participants centered around the practical day-to-day implementation of the curriculum. Interviewees’ concerns focused on four sub-categories: time, scheduling, legalities, and transportation.

The majority of interviewees commented on the “time-consuming” aspect of implementing a comprehensive STW curriculum. It was seen to be time consuming from both the administrative and teacher viewpoint. An inner-city site principal highlighted this concern.

It’s very labor intensive on the part of the adults because you are taking on so many other roles and functions. Teachers who are preparing for their academic arena also have to be preparing for the School-to-Work arena. That’s very intensive.

Activity and work-experience scheduling was a concern that appeared frequently in the interviews. As one academy principal suggested, “The whole scheduling arm of this, it’s not impossible but it’s certainly an issue that needs one’s attention because if it’s going to be real, then it can’t be Mickey Mouse.” Some interviewees indicated that they were “hamstrung” by their schedules, particularly those working in schools functioning within the traditional eight period school day. Some people at these sites indicated that the schedule limited their options and fostered departmentalism rather than interdisciplinary activities. Although block scheduling was not seen as a reason for establishing a STW program, it was frequently cited as being “valuable”, “beneficial”, and “helpful”. Interviewees claimed block scheduling supported more integrative curricula, flexible programming, in-depth exploration, extensive community and workplace visits, and in-school speakers, films, and workshops. Block scheduling also gave schools more time for teacher development activities such as inservice education and new materials review.

The legalities of implementing a STW curriculum that included worksite visits or on-the-job training (internships, apprenticeships) were commonly cited as concerns. The legal concerns most frequently mentioned were business and school liability, student safety, and child labor law issues. In addition, transporting students to jobsites, on field trips, and to area high schools in a

safe and timely fashion was viewed as a significant curriculum implementation challenge by many of the respondents.

Resources

Resources, both financial and human, were frequently cited by interviewees as the number one issue or concern in implementing a middle school STW curriculum. Interviewees were particularly concerned with two financial situations: maintaining the curriculum “as is” after grant funds dried up, and locating funding for the expansion of a component of the STW curriculum (e.g. internships). Several interviewees commented on trying to maintain and build on a non-mandated program during a time of “reduced school spending” and “district budget cuts.” A city school principal explained how finding additional funding sources was essential to running a successful STW program. She said:

Resources are the key. What we’re trying to do could not be done by us alone on the traditional school budget. I think more people are cognizant that we have to have additional resources, and that it’s going to take more than one or two people writing grants if we are to be fully successful in what we’re trying to do. Resources are constantly an obstacle....in order to do project-based learning, which is critical to School-to-Work, you can’t simulate a career using textbooks in the classroom.

Interviewees noted that personnel needs were an important area of concern. Finding qualified and willing business people to oversee and supervise students on the worksites and act as mentors and role models was reported to be “a challenging aspect of the STW program.” In addition, convincing business partners and community members to continue supplying the local STW program with speakers, mentors, job coaches, etc. was viewed by some interviewees as a possible future concern. One city school principal described the need for business participation in the STW effort at her school as “a constant challenge” and “an on-going focus.” Interviewees at several of the sites were concerned that certain essential in-school personnel positions, such as a STW coordinator position, would be eliminated when grant money disappeared, and that the classroom teachers would be burdened with the responsibilities of that position.

Program Quality and Outcomes

Many of the interviewees mentioned concerns about improving the STW classroom instruction and expanding the work-experience opportunities each year. Other interviewees were concerned about the consistency of quality in student work produced in the STW program.

The measurement of growth and progress by analyzing changes in individual student test scores is a common practice in many school systems. A few of the interviewees were concerned because the progress students had made in the STW program was not necessarily evident to teachers outside of the STW program or in standardized test scores.

Resolution of the Issues and Concerns

Overall, interviewees indicated that their issues and concerns about implementing and maintaining a quality STW curriculum for middle school students were “challenging” but

“workable over time.” According to one principal, “There’s always going to be a challenge. There’s always going to be a personality. It’s just like the real world, there’s always going to be something to overcome, but that’s just part of it.” Interviewees also suggested that the “trials and tribulations” they had to work through were typical for any new or innovative program introduced to a school or school system. Some concerns, such as transportation availability, were viewed as “on-going” and “expected”. One community education director explained the process followed to resolve issues and concerns in his school.

My sense is that it’s just going to take some time. I think there’s just a lot more conversation and understanding and group planning that we have to do to really take it to the next level. That will come. I don’t think it’s insurmountable, but we are going to have to rethink the basic ways we think about school and see how good we are at doing that.

DISCUSSION AND IMPLICATIONS

It was anticipated that educators would include enhancing curriculum relevancy, better serving needs of at-risk students, and enhancing student development among their reasons for curriculum implementation. The remaining themes (developing career awareness and exposure, supporting systemic change and school reform, building community linkages, and improving the transition to high school and beyond) were less obvious in the literature but appear to be of no less importance. All reasons were to some extent a function of school context.

About half of the middle school educators interviewed offered conceptual reasons for implementing their STW curricula. Some persons referenced *Turning Points* (Carnegie Council on Adolescent Development, 1989) and/or general middle school concepts as a foundation for curriculum development efforts. Several educators saw the STW curriculum as an excellent fit with the middle school philosophy of assisting students to transition from child to young adult.

Interviewees mentioned a small number of organizational and operational reasons for implementing STW curricula in the middle school. Interdisciplinary teaming, which was discussed most frequently by educators as an organizational reason for implementing STW curricula, is quite visible in the literature. However, it is not clear who the members of these teams should be.

Collectively, middle school educators indicated their curricula focused on five different but interrelated areas (career exploration and awareness, self awareness, contextual learning, service learning, and integrated themes). It was in this area where STW curricula appeared to differ most from curricula advocated in the general middle school literature. However, the actual difference is quite subtle. Regarding curriculum determination, implicit in the literature is a view that educators are the source of content knowledge and organization for middle school curriculum development. In contrast, several educators indicated that at their schools a broad net was cast to capture content for inclusion in the curriculum. Through a range of approaches, educators brought a real world focus and view into the curriculum.

Interviewees described a broad range of benefits STW curricula provided to their students. Comments underscored contributions of STW experiences to middle school student

development. Middle school educators noted the middle school STW curriculum enhanced their students' personal development in the areas of individual growth, self understanding, confidence, self-esteem, and motivation and responsibility to learn.

Several suggestions are offered for consideration by those interested in more fruitful collaboration between School-to-Work curricula and the middle school agenda. As a starting point, consider the direction STW opportunities in some middle schools appear to be taking. As described by educators in exemplary middle schools where STW curricula are being provided to students,

- these students can prepare for their futures in addition to satisfying their current needs.
- teaching and learning focus on both the educational process and its outcomes.
- every educator in the school can team with each other as well as with community and workplace representatives to provide students with authentic learning experiences.
- the context for teaching is proactive and dynamic rather than reactive and static.
- the curriculum can be developmentally responsive to students and concurrently provide them with a wide range of opportunities such as career exploration and awareness, contextual learning, service learning, and integrated learning themes.

Thus, there appears to be a clear connection between what the middle school literature says middle schools should do and what a number of STW-oriented middle schools are doing. Even though STW opportunities in the middle school may not be a mainstream focus for middle school professionals, these opportunities have the potential to meet students' developmental needs in new and exciting ways. It is therefore important to better understand and document exemplary STW opportunities that are occurring in many middle schools across the United States so their successes can be shared with other middle school educators.

It likewise appears that middle schools where STW opportunities are being provided to students may indeed be exemplars of best practice as envisioned in the middle school literature. Broadly-based teacher teaming, extensive linking with the community, providing students with opportunities for contextual learning, enabling students to explore the real world, and providing students with meaningful development experiences are all suggested or implicit in the middle school literature and can all be accomplished within a STW opportunities framework. Descriptions about STW opportunities that can be provided to middle school students and their potential value must be communicated to the middle school educator community. Middle school educators should have access to this information before they begin to implement major curriculum changes. In fact, the STW curriculum may be exactly what a number of middle schools really need.

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COMPARING THREE AUTOMOTIVE PARTNERSHIP PROGRAMS AT THE COMMUNITY COLLEGE LEVEL WITH THE SCHOOL TO WORK MODEL

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Introduction to the Study

The automotive service industry faced increasing consumer demands for quality repair work and a shortage of qualified new technicians. Many long time technicians have also been retiring from the profession, creating additional need. These factors are contributing to the National Automotive Technicians Education Foundation (NATEF) prediction for hiring an additional 60,000 technicians by the year 2000 (NATEF, 1998, p. 1). The complex electronic and computer technology found on today's vehicles have placed greater demands on educational institutions to insure automotive technology students acquire skills directly relevant to becoming competent auto technicians.

Partnerships between automotive businesses and community college systems represented one method to educate and prepare students for work as automotive technicians. Since the mid-1980's, General Motors (GM), Ford, Chrysler, Toyota, and Nissan have developed partnerships with community colleges throughout the U.S. These partnerships provided school and work-based student education. The automotive instructors established relationships with local auto dealers for student placement in work-based learning activities, participated in corporate training to keep pace with the latest technology, and the colleges received vehicles, tools, and equipment.

Since passage of the School-to-Work Opportunities Act (STWOA) in 1994, research on various types of partnership programs have grown in number, including research identifying indicators of successful school-to-work partnerships. Although many automotive partnerships are more than 10 years old, research specific to these partnerships has been scarce.

Statement of the Problem

Community college automotive partnership programs have faced many challenges. Critical elements on which the success of a program hinges include: maintaining enrollment; a strong dedicated faculty; relevant, practical experience for the students; and cooperative business partners. Successful programs provide students with the cognitive, behavioral, and affective elements necessary to transition into a full time career in the automotive profession. The business partner provides the student with a real world setting to practice these skills. The student benefits in knowing from the start that their course work has real world relevance. The business partner benefits by having a steady supply of new talent to preview while the student is in school. The college benefits from donations made by the business partner, training provided to college faculty by the partner, and having a program that attracts local students.

Research work in the early 1990s has identified indicators present in a broad spectrum of successful school-to-work partnership programs. An example of this research was A Benchmarking System for Tech Prep, from the Center on Education and Work at the University of Wisconsin, Madison (Connell, Dungan, & Mason, 1995). This research developed a self-

assessment instrument for tech prep and partnership programs. Yet, very little research specifically focused on automotive partnership programs has been done since passage of the School-to-Work Act in 1994.

An examination of successful school-to-work automotive partnership programs at the community college needed to be conducted. The intent of this research was to compare indicators of success present in automotive partnership programs with those identified in previous research of other school-to work (STW) programs.

Statement of the Purpose

The purpose of this study was to identify indicators contributing to the success of three school-to-work automotive partnership programs at community colleges in the Southern California area. Characteristics of a successful program include: Formal instructional plans that link the work place with college course work; an operationalized commitment that was carried out by the college and business partner(s); completers of the program who reached their initial goals for school and work; and innovative approaches to deal with curriculum, administration, and partnership issues. The research involved three Southern California community college automotive partnership programs. The partnerships are comprised of a business partner (Ford, General Motors and Toyota) and one of their community college sites. For this study, the partnership program managers at Ford Motor Company, General Motors Corporation, and Toyota Motor Sales of America, Incorporated were contacted and asked to identify their strongest partnership college site in the Southern California area. The School-to-Work Self-Assessment checklist (instrument) used, with permission of the University of Wisconsin, was provided to community college faculty involved in the partnership. Minor word changes to the instrument were made to improve clarity for the subjects in the community college partnership program. The subjects included the program coordinator, instructors, department dean, and counseling staff. A group interview was conducted with partnership program students at each site to obtain their input on indicators of program success that were directly relevant to them. Site visits were made to view facilities and observe each program in action. Follow-up interviews with the partnership program coordinator(s) were made for clarification of data. The research proposes to answer the following questions:

1. Which indicators of successful partnerships identified from previous research are common to these programs?
2. Which indicators of successful partnerships identified from previous research are not present in these programs?
3. Are any unique indicators identified in these programs that have not been cited in previous research?
4. Are there significant differences in each program and if so, how do they contribute or detract from program success?

After data collection, answers were synthesized from participant responses, comparison of the responses among the research participants, and previous research in this area.

Design of the Study

This research was a study of three automotive partnership programs located in Southern California. Ford, General Motors (GM), and Toyota were selected as the business partners because of the longevity and commitment of their programs. The college sites were selected based on input solicited from the Ford, GM, and Toyota corporate managers responsible for the Southern California partnership programs. Each nominated community college was then contacted for willingness to participate. All verbally agreed, leading to formal paperwork and Institutional Review Board approval of California State University, Long Beach.

The research methods included adaptation of the self-assessment instrument developed by the University of Wisconsin, Madison. College faculty and staff who work with the partnership program were asked to complete the survey instrument.

Site visits to observe program elements and conduct group interviews with partnership program students provided additional insight. The use of three sites allowed the research to gain insight into the elements that are similar and those that are unique between them. The research data were reviewed individually and collectively. Although it was not a primary purpose, it was useful to discuss the similarities and differences between the three programs as they related to the presence or absence of indicators. Using three sites helped eliminate problems that may have occurred using only one site. Examples of problems were: unique characteristics present at one site but not common in these programs, including a site that was not as successful as the business partner believed, and making recommendations and generalizations based solely on one site.

The sample included community college staff involved with the partnership programs of Ford, GM, and Toyota, and currently enrolled (students) in these programs. College personnel included the dean of technology, the head instructor or program coordinator of each program, other instructors who teach automotive classes in the program, and counseling staff that support the automotive department. The desired students for the research were those who were within two semesters of graduating.

The survey instrument was an adaptation of the Center on Education and Work, at the University of Wisconsin, STW Self Assessment Check List. This instrument was designed for partnership program staff to meet as a group and evaluate their program by reaching a consensus based response to each question. The instrument was developed based on research of success indicators for these programs. The instrument is divided into seven categories, with sub-categories in each section. The seven main categories are: access, articulation, career development, collaborative partnerships, curriculum development, professional development, and work-based learning. Adaptation of the instrument was made with permission of the University of Wisconsin. This was done by changing words in some questions to directly reflect the automotive partnership program environment.

Data collection began with a site visit at each college. Each program coordinator provided a tour of their facilities, including training vehicles and shop equipment. During this visit, the self-assessment instrument was provided to the program coordinator. Copies were prepared for other instructors who teach in the automotive classes in the partnership program, the department dean, and counseling staff assigned to the partnership students. The instrument purpose was explained verbally and in a cover letter attached to each survey. Return envelopes were provided with each survey, along with a separate consent form and envelope to insure anonymity.

Based on the survey results, brief follow up interviews were conducted with the program coordinators for clarification of conflicting survey data. The self-assessment instrument was originally designed for use in a group setting. The group would discuss each question and respond based on consensus. This format was not used because of the time commitments it would impose on the staff at each site to meet and respond in a consensus manner to 146 questions.

Since each site had two or more surveys returned, the possibility for data conflicts existed. Conflicts were noted and then reviewed with the program coordinator at the respective site. It was felt that the coordinator was closest to the program and thus their response was used for these items solely.

An appointment was made to interview the partnership program students during initial site visits and interviews were completed at each community college. Prior to commencing the interview, all students were read a consent form and given the opportunity to not participate. The interview consisted of eight questions as follows:

1. What can you tell me about the program coordinator's leadership? (prompts: Are details of the program covered adequately? Is there genuine concern toward your success in the program? Is the coordinator available to discuss your problems or concerns?)

2. What examples can you tell me about on the commitment of your instructors toward the program? (prompts: Are the instructors excited about the benefits of the program? Do they use the equipment that is donated? Are you able to apply what you learn on the job at the program work site?)

3. Can you give me any examples that show how this program is committed to excellence?

4. Do you regularly meet with the program coordinator, guidance counselor, and/or instructors to discuss career information and if so, describe how this may have helped you?

5. What kind of discussions do you have with the work-site leader regarding career possibilities?

6. Can you describe how you have matured since you began the program with regard to your abilities, knowledge, and self-confidence?

7. What can you tell me about the non-automotive classes you took? (prompts: How will they help you in the future? Were they a waste of your time? Did you want more choices on what was required?)

8. Now that you are close to completing this program and graduating, what are your plans for the future?

The questions were designed to provided student responses regarding the success indicators of the school-to-work model. These included relevant experiences such as how the program coordinator provided guidance and support for them in the program.

Results and Analysis of Data

Data came from four sources: the survey instrument, interviews with each program coordinator, student group interviews at each site, and program observation at each site. The primary data source was the survey. The survey was sub-divided into seven sections as follows: access, articulation, career development, collaborative partnerships, curriculum development, professional development, and work-based learning.

The results were reported for each section. The site observations and interviews enhanced the survey data using a different data collection method which provided opportunities for explanation and clarification. It should also be noted that the student interviews were critical to this research, as success for students completing the program and obtaining employment in automotive dealer service departments as technicians are why these programs exist. Therefore, student viewpoints were included to provide added additional data in this research.

Data were first tabulated by site to create a master survey for each program. It was important to note that surveys were completed on an individual basis at each of the three sites. Responses to the same question could range from "fully implemented" to "not applicable," dependent upon the perspective of the respondent. Several questions with opposing responses of "fully implemented" versus "not applicable" occurred at each site. A follow-up interview was made with the program coordinator at each site to clarify these conflicting responses in the survey data. They were chosen because they were the leaders of these programs at their colleges. The survey questions with conflicting responses demonstrated differing viewpoints on the program's status among the respondents. There could have been many reasons for this, such as differing perspectives on the level of implementation from one person to another, differing interpretations of the survey question, lack of familiarity with an aspect of the program, and personal experience within the program, to name some.

Data were then taken from each master survey to form a composite response of all three sites for each question. Data analyses were subsequently created from analyzing the composite responses, along with related site visit data, program coordinator interview data, and student interview data. The analyses were reported based on the seven section divisions of the survey instrument.

Results

The following are a reporting of research data from this study. It is reported by title of each section and applicable sub-sections of the survey instrument. Due to space limitations, the data tables are not included here but are available at the presentation.

Access

Recruitment and Enrollment

Each site had printed materials they distributed to potential students. The materials included those provided by the automotive corporate sponsor, as well as those created by the community college automotive department. These materials were made available to prospective students at the college and various recruitment activities, such as high school career days, outreach to high school automotive programs, and student days at automotive events such as the National Hot Rod Association Winter Nationals (drag racing) in Pomona, California. It should be noted that outreach before the 11th grade has been identified as an important element in the STWOA, yet was only partially implemented at these sites.

Assessment

Absent from all three programs was vocational and aptitude testing for all students. When a student had test scores, they were shared with the faculty. The T-TEN site did require each student to write a short paper on why they wished to enter the program as part of the enrollment process. The program coordinator stated that this helped eliminate students with marginal interest. If they could not take the initiative to write this paper, they may not have what it takes to get through the program.

Support Services Related to School-to-Work

All sites had dedicated counseling staff, though student's opinions at each site varied. At the T-TEN site, 10 of the 23 students met with a guidance counselor, with one student stating "the instructors act as our counselor, and they end up being better than the guidance counselor." Other students agreed with the statement. Another student added: "They [guidance counselors] don't understand what we do here [in the program]." The situation was similar at the ASEP site, with many students never meeting with their assigned guidance counselor. In sharp contrast was the ASSET site, where all students met with their counselor. One student stated: "the best [guidance counselor] in the school; she understands this [ASSET] program." Another stated: "She is smarter than most [counselors]." The program coordinator also stated that the counselor was very supportive and worked with him to insure students were on track to graduate on time.

Classroom Accommodations Related to School-to-work

Accommodating special populations students was implemented at each site. The ASEP coordinator spoke of the recent graduation of two deaf students. These students had sign language assistants present for course lectures. There was also mention of a graduate who used a wheelchair for mobility. The ASEP coordinator stated that course materials and activities were not specifically designed to accommodate special populations. When a student with special needs enrolled in the program, adjustments were made to accommodate the student. Each program coordinator mentioned that support staff were assigned when needed to insure accommodation of students with special needs. The ASSET coordinator stated he used English as a second language and math tutors for students with these needs each semester.

Inclusive Approaches/Strategies

None of the sites had any activities related to inclusive strategies for special populations nor had they implemented strategies for proportional participation. All schools reported they had thorough documentation procedures for school to work activities for all students.

Articulation

Articulation Agreements

All sites had articulation agreements with secondary schools and four year colleges. None of the sites listed competencies to be achieved in the articulated courses. All articulation

agreements listed courses for which credit would be given, yet the procedures for this were present at two of the three sites. With regard to articulation with high schools, the ASEP coordinator mentioned that if a student asked for articulation credit, they would grant it. There was no effort to encourage students to exercise this option. One coordinator stated he preferred that the student take the articulated class (at the college) so they could evaluate student performance and attitude. All coordinators stated that they worked with students who planned to continue their education at four year institutions so they received articulation credit.

Transcripted Credit and Dual Credit

All sites provide transcripted course information to students. Upon transfer, the student transcript reflects this course work and the assigned letter grade.

Advance Standing Credit

All sites provided advanced standing course credit information to their respondents. One site provided this information on the student transcript, while one responded "not applicable" at their college. The other site had a split response of "should plan" and "not applicable."

Post-Secondary Linkages

One site responded that articulated course work included competencies required in the post community college program(s). The other sites responded "not applicable." This was not the same as responding in the negative to this question. The survey participants may not have been completely aware of articulation agreement details. Competency identification was identified as fully implemented at one site, with the others responding "not applicable." Again, awareness of articulation agreement elements and the level of communication, if any, with the community college may have affected the response.

Career Development

Career Exploration

Career exploration was integral to the curriculum and activities in the partnership programs. This was discussed during student interview sessions at each site. Students indicated their course work and work place experience was preparing them for technician positions at an auto dealership. However, they stated they had little or no discussion on future education and career options beyond their current objective--completion of the partnership program. In the follow-up interview, the program coordinators were asked about this. The ASEP coordinator response was similar to the others: "The dealership partners are investing in these students, providing work based learning, and they want them [students] to stick around a while. So, we don't spend a lot of time beyond getting that job at the dealer." The ASSET coordinator mentioned that he discusses opportunities such as working for the Ford regional office and teaching.

Curriculum Map and Career Map

The ASEP and ASSET sites utilized curriculum/ career maps to help guide students through the program course work. The T-TEN site responded “not applicable” for most of this section, with partial “should plan” responses that scored equal to “not applicable.” The ASEP and ASSET programs are very structured with regard to curriculum and sequence. As mentioned earlier, the ASSET program divided each 18-week semester of the two-year program into a 9-week session at the college and 9-weeks at the dealer (work-based component). This format allowed the use of a very specific program for the ASSET student, but also reduced options in selecting elective courses. Any elective had to be part of the 9-week format or the student would have had to arrange his/her school, work, and personal schedule to attend an 18-week course. The T-TEN program was less structured and also allowed students more latitude in selection. This may account for the T-TEN responses of “not applicable” to these questions.

Career Major

The three partnership programs provided students with very strong career-oriented training. Except for linkages to four-year universities, all sites reported full implementation of the elements listed. By design, each program integrated the school-based learning with the work-based learning. For example, the ASSET coordinator noted that as students completed course work in transmissions, they would spend the next 9-weeks of the work-based learning component in the transmission department at the dealership. The other sites had similar arrangements. With so much time spent working in the dealer, the programs were structured to support this with adequate and relevant classroom activities.

Career Plan

Each program had work sheets that identified course work and sequencing for students. The students met with the coordinator every semester to review course scheduling for the next semester. The students keep a copy of the work sheet so they could reference it at any time. At each of these sites, most students progressed as a group through the program. This provided peer reinforcement as they shared in their experiences in course work and job experience. Only the ASEP site reported “not applicable” to a question in this section. The ASEP coordinator stated career planning was left at the auto dealer level rather than the college. The dealers who provided work-based learning environments, paying job positions, and hired the students as technicians after graduation, preferred to offer career growth opportunities once the student was working full time.

Career Portfolio

The responses to the career portfolio questions showed little to no implementation of these elements. During the follow-up interview with the program coordinators, each stated this was an area that needed exploration, and the data supported this from the number of “should plan” responses. At the time of the study, there were no requirements for students to create or maintain a portfolio. The ASSET coordinator mentioned that students received certificates of completion for course work and their grade reports.

Career Development

Responses to questions relating to elements of career development activities at each site show only one site did this on a semester basis. All reported they had community member participation. The business and labor participation usually involved activities with dealer partners of each program.

Job Shadowing

The ASEP and ASSET programs reported full implementation in this area. The T-TEN program reported this area was not applicable. In discussing the results in this section with the coordinators, the term job shadowing caused confusion. The T-TEN site responded "not applicable" because the students were working, not shadowing, at the job site. All three of these programs rely on strong integration of school and work-based learning. Caution must be exercised in interpreting the data in this section due to different interpretations of the term "job shadowing" at these sites.

Collaborative Partnerships

School-to-Work Coordinator

Each coordinator markets the program through distribution of print materials and visits to local high schools. These partnership programs have been on-going for several years, therefore many potential students had already known of the program. Each coordinator mentioned student recruitment had not been difficult, with some students seeking out the program on their own. Each student was responsible for obtaining placement in a dealer for work-based learning. The coordinator provided the student with a list of interested dealers and the student then interviewed with the dealer. Occasionally, the coordinator would intervene if a student was having difficulty finding placement. The coordinators spent a great deal of time recruiting and maintaining dealer relationships for the students. The ASSET coordinator's statement was similar to the others: "Getting dealers to participate was sometimes difficult, though once they go through it and saw the benefits, they sought out students."

Active Participation/Contribution

Participation and contributions in these partnership programs was positive. Student comments at the ASSET site were typical of the responses of the three sites with regard to equipment, special (product specific) tools and vehicles: "We have all the Ford special tools, newest greatest equipment, and cars to work on." The coordinators all indicated their business partners (dealers and corporate sponsor) provide essential tools, student materials, and vehicles at more than adequate levels. For example, the ASSET site had 22 vehicles donated by Ford, while the ASEP and T-TEN sites had similar numbers.

Student materials for product specific courses were developed by the corporate sponsor. These materials were also used by dealer technicians when they attended corporate training courses. This system insured that the students received current and relevant information and

allowed the students to receive corporate credit for this course work in the corporate sponsor training system. This was valuable for the student, as corporate sponsors often certify dealer technicians, partly based on training completed. Upon graduation, the student was well on the way to achieving the "Master Technician" certification, which leads to higher pay and promotion potential.

Collaborative Partners

The partnership programs reported almost full implementation in relation to the questions regarding collaborative partnerships. By definition, these programs include business and industry leaders, both from the automotive corporate office and at the local level with dealer service personnel. The product specific curriculum was primarily developed by the business partner for use in corporate training classes and the partnership programs. All programs indicated full implementation in partner collaboration for recruiting organizations into the partnership. This was primarily corporate sponsors working with their dealers to get them to sign on and maintain their stake in the partnership.

Strategic Planning

Two of the three sites conducted annual meetings specific to the partnership. Of the two, only one reported setting goals and objectives specific to implementation of the program. Two sites reported using these meetings to plan coordinating activities among those involved. Only one site reported partial implementation for evaluating the effectiveness of the planning activities.

Communication and Marketing

The data show sporadic implementation in the area of communication and marketing. One site responded "not applicable" to all questions in this area, except for partial implementation in education of all teachers and administrators about school-to-work. Another site reported full implementation in all areas except education of all teachers and administrators and regularly updating stakeholders about changes in school-to-work. The third site responded primarily in the planning and should plan areas.

Curriculum Development

Integrated and Applied Instruction

All three sites reported full implementation of integrated and applied instruction. Each program utilized product specific training materials in their course work. This material included print, video, computer pro-grams, training simulators, and guided hands-on practice on vehicles and vehicle components. Use of these materials provided the students with relevant instruction and practice sessions that were directly applicable to their work-based experiences. These materials were the same ones their work place mentors used when they attended corporate training classes. Students at each site said they felt their course work had direct application to what they were doing in their work-based experiences.

Integrated and Applied Content

Data again show high implementation of the elements in this area. The use of corporate training materials provided a solid base for product specific, up-to-date, automotive training, which combined with other automotive and academic courses gave students the knowledge to apply in the work-based environment. Student comments at each site were similar in this area, with T-TEN students stating their course work had integration and relevance in their hands-on experiences. The program curriculum maps guided the students through the courses in a recommended sequence.

Integrated and Applied Assessment

These programs have incorporated performance-based education into their curriculum. Again, the use of corporate training materials, including books, video, computer based learning, tools, and vehicles, allowed the instructor to evaluate students not only in the cognitive domain, but psychomotor and affective domains. Work was often done in groups in the college environment, due to the number of tools, components, or vehicles required for a specific activity.

Professional Development

The area of professional development overall showed limited implementation at these sites. It was important to note that at the ASSET site, there was one faculty member who coordinated the program and taught all the automotive courses for the program students. This made it difficult for the coordinator to participate in these activities if they conflicted with the semester schedule. As the ASSET coordinator stated: "If I'm not here, the program stops." At the ASEP site, the coordinator went on sabbatical for one year. The college had to find a qualified individual to hire for one year in order to keep the program going. This was not easy, due the product specific nature of the course work and administrative duties of the program.

Faculty Internships/Job Shadowing Opportunities

Data in this area show varied implementation at these sites. There was some participation in intern-ships and job shadowing from the survey data, and interview data with the coordinators confirmed that participation was sporadic at best. When faculty participate in these activities, the data show they are allowed to alter curriculum and have the opportunity to share their experiences with other faculty.

Joint In-Service/Staff Development Opportunities

All three sites reported conducting faculty in-services. Upon clarifying these data with the program coordinators, there was a common theme at each site. The in-services covered a variety of topics outside of the partnership program realm. There was no mentions of in-services specific to the partnership program by the coordinators. This, combined with the survey data, show there may be opportunity for conducting partnership program in-service activities.

Work-Based Learning

The data in this area highlight work-based experiences for the students as a great strength of these programs. The student interviews confirmed this. The students at each site stated their work-based experiences complimented their course work and saw the application of it in the real world setting. It should be noted that the course work methods did not always match the application in the work place, with students at the ASSET site stating: "Here [in college] we learn the factory method, but in the dealer we learn the slammers [production] method."

School Mentor/STW Coordinator Training

The data in this section show full implementation in the three pro-grams. Again, the strong support from the corporate sponsor insured that these programs provide up-to-date relevant experiences. The students recognized this. When asked why they would recommend their program to a potential automotive student, statements were made regarding the work-based experiences and the focused product training as the best ways to employment with the dealer. These students not only graduated with an Associate of Arts degree, they received corporate training credit, making them highly desirable in the job market in the eyes of the auto dealership.

The data show no implementation at any of the sites for school mentor and program coordinator training. One site reported they should plan these activities. It was important to note that each program coordinator was questioned about the data in this area during the follow up interview. The three coordinators were similar, stating their programs did not use mentors at the college site. All three coordinators had formal education in the field of education, so the data, with respect to the coordinators, did not appear accurate in this section. This may be due to unfamiliar terminology (i.e., mentor, coordinator). One survey participant circled these terms on the instrument and wrote: "We do not use these terms." Head instructor and program coordinator may be more common terminology in these programs.

School Mentor/STW Coordinator

The T-TEN site reported full implementation to each question in this category. The ASSET site reported partial to full implementation, and the ASEP data showed full implementation with the exception of identifying needs for additional learning opportunities. During the site visits, each coordinator stated they met regularly with each student and student comments at each site confirmed this. In these meetings, student progress was reviewed and the student had the opportunity to discuss his/her concerns. All coordinators stated they utilized campus resources for students who needed assistance, such as tutoring or referral to a counselor. The coordinators at each site stated they visited their dealer sites at least once a semester for feedback on student progress.

Work Place Mentor Training

The data received from each site was initially difficult to decipher in this area. This was due to conflicts in the responses from the individual sites. The data were often split between "full" or "partially implemented" and "should plan" or "not applicable." To overcome this, the questions in this area were reviewed with each program coordinator during the follow-up

interview. None of the sites conducted any formal training for the work place mentors. The ASEP program conducted workshops for the work place mentors to give them an overview of the program. The T-TEN and ASSET coordinators explained their programs to the participating dealer personnel on an individual basis.

Work Place Mentor

Data on work place mentors which show high levels of implementation and another area of strength in these three programs. The coordinators stated that the sponsoring dealers used their experienced technicians as mentors. This ensured the student was observing and working under a technician who was competent. The sites responded that their students were being challenged in the work place. The T-TEN and ASSET coordinators stated they discussed student standing with regard to current curriculum to help insure the students received hands-on practice relevant to the current classroom experience.

The student comments at each site regarding their work place experiences were similar. As mentioned earlier, they felt the experience overall was invaluable. Regarding constructive feedback, an ASSET student commented: "I only hear if I make a mistake." Others stated they met twice during their 9-week period at the dealer and others received non-verbal feedback: "If [the technicians] ask for our help, or if they avoid you, we know how we are doing." The ASEP students stated they met with their mentor every day, and the T-TEN students once a week. Overall, the students said they were given work assignments or assisted the mentor with feedback most often when a mistake had been made.

Conclusions

The success of these programs was rooted in the commitment and dedication of the college faculty, combined with the strong support of the business partners. The program coordinators voiced strong beliefs and dedication to their partnership programs during the site visits. This was also evident from visual observation. Each site was extremely well organized, with large shop areas, well stocked tool rooms and cabinets, and 20 to 30 vehicles for hands-on training practice. The students were very focused on the activities; working on vehicles in groups, completing a hands-on performance test for assembling a transmission, asking relevant questions in class, and working individually to complete computer-based training. The student comments regarding their program coordinator, relevant program instructors, and college auto shop facilities were very positive at each site.

Use of corporate training materials in the college course work ensured the students were receiving up-to-date, relevant education. These were the same materials their mentor technicians used during corporate training classes. The work-based learning component reinforced the classroom experience and provided real world work experience for the students. The students at each site stated their course work, combined with their work-based learning experience, prepared them for a technician career.

There were clear gaps toward full implementation in some indicator areas, including long range student career planning, integrating partnership activities into college strategic planning, professional development activities for faculty, and work place mentor training. While these programs are very career centered, they are focused on the immediate goal of employment as a

technician. Although it was mentioned as a politically sensitive issue by one program coordinator, long range career planning should be considered for inclusion in these programs.

Communication and inclusion with other campus departments about the partnership program showed low levels of implementation from the survey data and student comments. The program coordinators at each site indicated a high work load and high level of responsibility associated with maintaining these programs. Two of the three sites did not rely on counseling staff support for their students. Efforts to improve counseling staff awareness of the program and needs of the students was one example of how improving communication could improve support for the program and the students.

Professional development of the automotive partnership program faculty presented a challenge. Data showed low implementation in the area of planned growth activities for the faculty. These activities could include time spent working with work place mentors to keep current on vehicle repair techniques, attending educational and automotive training, and cross-training staff, such as with counselors, about the partnership program. Long term growth activities at one site presented a challenge. The impending sabbatical leave of a program coordinator required finding a qualified individual to fill in for a one year period. There may be an opportunity here for industry to assist by giving one of their qualified employees a sabbatical by placing them at the college as a coordinator or instructor. The parties involved should spend time creatively exploring how to solve this problem.

Work place mentor training was a critical issue at each site. Realistically, it would be difficult to expect mentor technicians to have formal educational training. However, it was reasonable to expect them to possess excellent communication skills, critique effectively, and use a college approved student assessment system to provide feedback to the students. The sites may continue in the spirit of self-assessment and look into each of these areas and develop action plans to strengthen them.

Program Differences

There were some differences among these three programs. A major difference was class scheduling in the ASSET program. This program operated on a different schedule than the standard 18-week semester of the college. They spend 9-weeks in class, then 9-weeks at the work site. The T-TEN and ASEP programs have students doing both school and work-based learning concurrently. The students in the ASSET program stated this schedule limited their general education choices as they did not cover all materials in the course syllabus and were taught by part-time faculty who they felt were not as caring or qualified as the 18-week instructors. Another difference was the curriculum structure of the T-TEN program. The ASEP and ASSET programs were very structured by the corporate sponsors. This provided consistency from college to college. The T-TEN program identifies minimums that students must meet, but leaves implementation details up to the college. Although this gave the college greater latitude for program structure, it also meant T-TEN students who attended different college sites received very different experiences.

Recommendations

Insight gained from this research work resulted in the following recommendations for similar studies:

1. Provide a glossary of terminology with the survey instrument.
2. Explore the possibility of having the sites complete the survey as a group, reaching consensus for each item.
3. Review the survey instrument with the participants to insure understanding of the intent of each section.
4. When distributing the Self-Assessment instrument for individuals to respond to at the site(s), anticipate respondent answers that conflict. This will require follow-up by interviews or other means to obtain clarification of the data.

Some surveys were returned with comments regarding the terminology used in the instrument, including "We don't use this terminology," and "I am unsure what is being asked." Also, in the follow-up interviews with the program coordinators, each mentioned they were not familiar with some of the terminology, causing confusion when responding to questions that included unfamiliar terms. Use of a glossary may have alleviated these problems.

The surveys were distributed in sufficient quantities for all faculty and staff involved with the partnership at each site. This methodology gave the participants the flexibility to complete the instrument at a convenient time. This did provide necessary data for this research. However, not all faculty and staff at each site participated and because the surveys were completed individually, there were several survey questions at each site that had a response of fully implemented versus not applicable. The survey instrument design used response selections based on implementation level, planning level, or not applicable. Unlike a Likert scale, a fully implemented response and a not applicable response cannot be averaged out to equal a planning response. Response disparity was overcome by conducting follow-up interviews with the program coordinators for clarification on the questions that had conflicting responses. To help lessen this problem, the researcher could explore the possibility of having personnel at the research site(s) complete the survey in a group format. All stakeholders could participate and the response to each question would be in one of the five categories. It should be noted that the University of Wisconsin developed this survey instrument for use in this manner. However, this methodology could present challenges including:

1. Are the personnel at each site willing to commit the time resources necessary to complete a survey with 146 questions?
2. Can the personnel easily schedule to meet together to complete the survey?
3. Do they have the skills necessary to reach consensus on each question?

Due to the challenges listed, this researcher distributed the surveys individually. The cost and benefits of these methodologies should be carefully considered by the future researcher.

When the surveys were distributed to the program coordinators, the overall intent of the instrument was explained. A cover letter was also attached to each to insure the other respondents had the same information. Based on the feedback from the program coordinators, it would have been beneficial to review each section with each participant. This could have cleared up initial questions from the participants, including intent of the research, how to respond, and any questions on unfamiliar terminology.

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Stages of Concern of Administrators and Teachers in the Implementation of the School-To-Work Transition Initiative in North Carolina

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Abstract

The purpose of the research was to determine the stages of concern (SoC) of JobReady practitioners at the secondary level in North Carolina. The SoC dimension of the Concerns-Based Adoption Model (CBAM) was used to assess concerns of superintendents, vocational directors, principals, assistant principals, guidance counselors, academic teachers, and vocational teachers in the original 15 grant-funded JobReady partnerships. The SoC Questionnaire, with a section added for demographic and related information, was used to survey the education groups.

Significant differences existed among JobReady partnerships based on configuration at the consequence, collaboration, and refocusing stages of concern. Single configured partnerships contained one public school system and multi-configured partnerships contained more than one public school system. Significant differences existed among JobReady partnerships when categorized by size at the awareness, informational, and collaboration SoC. Significant differences existed among the seven educator groups at all stages of concern. Significant positive relationships existed between perceived levels of JobReady involvement and highest SoC for principals, assistant principals, guidance counselors, academic teachers, and vocational teachers.

JobReady partnership configuration and size impact on JobReady implementation. JobReady leaders should consider these characteristics when both establishing partnerships and allocating human and material resources. Superintendents, vocational directors, and principals indicated most intense concern at the consequence and collaboration levels. Assistant principals, guidance counselors, academic teachers, and vocational teachers expressed the most intense concern at the personal level. It was concluded that obtaining involvement of school-based educators in JobReady strategies was an effective strategy for advancing SoC and facilitating implementation.

Introduction

Concerns that students are leaving American high schools unprepared to succeed in the workplace have made school-to-work transition (STWT) a popular education reform topic. According to the Florida Council on Vocational Education (1994), the United States may have the least effective STWT system of any industrialized nation. Glover and Marshall (1993) portrayed STWT as among the weakest links in the American learning system (p. 589). Others maintain that this country does not even have a STWT system (Mendel, 1994).

The STWT initiative has been referred to as both a renaissance (Beaumont, 1994) and a revolution (Brustein & Mahler, 1994, p. 22). Brustein and Mahler (1994) further maintained that the new emphasis on the development of a comprehensive STWT system has developed from changes in workforce needs and alarming facts about the preparation of American students for work and further education.

Congress conveyed its vision of an effective school-to-work system through passage of the School-to-Work Opportunities Act of 1994. This act was hailed as a giant step toward the development of an educational system that matches students' educational attainment and corresponding skills more closely to job opportunities (Brustein & Mahler, 1994). The act identified three basic STWT components as school-based learning, work-based learning, and connecting activities. This implication that the school and the workplace will be intertwined as never before carries with it new responsibilities for both businesspersons and educators.

Significance and Statement of the Problem

In March 1995, sixteen partnerships in North Carolina received initial planning grants to implement JobReady: Pathways to Career Success (hereafter, referred to as JobReady). JobReady is the state's STWT system. North Carolina has since received a federal grant to further implement the system. Additional planning and implementation grants were awarded JobReady partnerships in March 1996. Funding for the JobReady initiative is expected to continue over the next several years. This study was needed to examine implementation concerns of early adopters so that future partnerships could benefit from the findings of this study.

Reform initiatives such as JobReady provide practitioners an avenue to change expectations, attitudes, teaching strategies, and organizational structure. However, the benefits of educational innovations cannot be fully realized until these practitioners, including administrators, counselors, and teachers, adopt and implement change in the classroom (Long, 1994).

The levels of concern held by practitioners may influence the extent to which an initiative is implemented. Information is needed to determine the concerns of practitioners regarding implementation of JobReady strategies. State and local JobReady leaders need to know more about practitioners' levels of concern with regard to the following:

1. implications of JobReady for the practitioner;
2. demands of JobReady on the individual;
3. management, time, and logistical aspects of the innovation;
4. impact of JobReady on students;
5. interaction with others needed for JobReady implementation; and

6. potential for more universal benefits of the JobReady initiative.

Effective and efficient change strategies to reach the successful reform level must be formulated. Attention must be given to the delivery of these strategies at the local level. JobReady leaders need insight as to how JobReady partnerships should be organized and funded to obtain maximum support from practitioners. The concerns of practitioners need to be addressed if JobReady is to have sustained impact.

Purpose of the Study

The purpose of this study is to determine the stages of concern (SoC) of JobReady initiative practitioners at the secondary level in North Carolina. The study was guided by the following research questions:

1. Is there a difference in the stages of concern of original grant-funded JobReady partnerships in North Carolina when categorized by either size or configuration?
2. Is there a difference in the stages of concern of JobReady among the superintendents, vocational directors, principals, assistant principals, guidance counselors, academic teachers, and vocational teachers?
3. Are the highest stages of concern for superintendents, vocational directors, principals, assistant principals, guidance counselors, academic teachers, and vocational teachers related to perceived levels of JobReady involvement?

To address these research questions, the following null hypotheses were formulated:

- Ho1 There is no statistically significant difference in stages of concern related to JobReady among original grant-funded partnerships with different forms of configuration.
- Ho2 There is no statistically significant difference in stages of concern related to JobReady among original grant-funded partnerships varying in size.
- Ho3 There is no statistically significant difference in stages of concern related to JobReady among superintendents, vocational directors, principals, assistant principals, guidance counselors, academic teachers, and vocational teachers.
- Ho4 There is no statistically significant relationship between highest stages of concern related to JobReady and perceived level of JobReady involvement among superintendents, vocational directors, principals, assistant principals, guidance counselors, academic teachers, and vocational teachers.

Theoretical Framework

The theoretical framework of this study is grounded in the body of knowledge referred to as change theory. This knowledge supports the premise that individuals adopt new initiatives transition through stages. The Concerns-Based Adoption Model (CBAM) utilized in this research study was developed from this theoretical base.

Curtis (1991) observed that "the difficulties of understanding and attempting to change human behavior have been great enough to be avoided by many brilliant minds attracted to

challenging problems” (p. 6). Fullan (1982) characterized educational change as being complex, difficult to define, and multidimensional. Katz and Kahn (1978) acknowledged that “attempts to change organizations by changing individuals have a long history of theoretical inadequacy and practical failure” (p. 658). Authorities concur that change is a process and acknowledge the importance of the individual in this process (Hall & Hord, 1987; Fullan, 1982). Hall and Hord further declared that accepting change as a process with a personal dimension was imperative to understanding change.

The recognition of change as a process implies the existence of a time dimension. A frequently used approach to conceptualizing this time dimension has been to describe various phases occurring during the change process (Hall & Hord, 1987). Sisk (1969) reported that Massachusetts Institute of Technology psychologist Edgar H. Schein had developed an effective change model for use in the development of management personnel. This model included steps labeled as unfreezing, changing, and refreezing. Long (1994) described these three stages as creating motivation to change, developing new responses based on new information, and stabilizing and integrating the changes.

Research supports the premise that three broad stages comprise the change process. These stages are described by Fullan (1982) as follows:

- Phase I -- variously labeled initiation, mobilization, or adoption - consist of the process which leads up to and includes a decision to adopt or proceed with a change;
- Phase II -- implementation or initial use (usually the first two or three years of use) involves the first experience of attempting to put an idea or program into practice; and
- Phase III -- called continuation, incorporation, routinization, or institutionalization - refers to whether the change gets built in as an ongoing part of the system or disappears by way of a decision to discard or through attrition. (p. 39)

Fullan expanded these phases by including outcome or results as the fourth phase of a “detailed and snarled” (p. 40) change process. According to Fullan, the process is complicated by (a) numerous factors operating at each stage, (b) the altering affect of events at one stage on decisions made at previous stages, (c) the scope of the proposed change and the source of initiation, and (d) the inability to precisely demarcate the time perspective. Fullan (1982) implied that change facilitators must deal with the complexities of people involved in implementing change.

Curtis (1991) maintained that change theories must recognize that an individual’s behaviors, thoughts, and feelings can be altered either within an existing framework or when the entire organizational system changes. For the individual, the educational change may impact “their occupational identity, their sense of competence, and their self-concept” (Fullan, 1982, p. 33).

In a discussion of teacher change as it relates to the staff development process, Richardson (1994) cited several studies supporting the premise that teacher beliefs are related to classroom practices. Noting conflicting views on whether changes in classroom practice precede or follow changes in beliefs, Richardson conceived the beginning of the teacher-change process as being dependent on the types of changes and the teachers themselves. Therefore, the change process could begin with either changes in beliefs or changes in practice.

In an examination of individual change as it occurs in work settings, Bunker and Delisle (1991) generalized that participation in the change process could facilitate change and lead to greater internalization. They identified two issues pervading all frameworks of organizational change efforts. The first issue identified targeted levels of individual change. The most internal levels, consisting of feelings and values, are more difficult to change than more external levels identified as skills and observable behaviors. The second issue related to the extent to which the individual internally accepts and integrates the change. If the change is to be sustained over a long period of time, it must be accepted and internalized by the individual so that it becomes part of their value system.

Bunker and Delisle (1991) maintained that the change process begins for an individual or group when a gap is perceived between actual experiences and desired experiences. They also reported that people commonly resist change because of impact on their values, a lack of understanding about the change and its implications, a belief that the change is irrelevant, and a low personal tolerance for change. Hall and George (1979), citing studies that document the complexity of educational change, noted the important role of teachers in the process. They concurred that innovations fail due to inadequate consideration of the human element. For educational endeavors to be successful, teachers' reactions to the program must be taken into account.

The CBAM was developed by the University of Texas Research and Development Center (UTR&DC) to conceptualize and facilitate educational change (Long, 1994). Hall and Hord (1987) noted consistent results in studies of teachers' problems and satisfactions, which indicated the existence of change patterns. "These early studies and data became the first indicators that the differing perceptions and needs of teachers are important considerations when developing and delivering teacher interventions" (p. 55). This research base indicated that different teachers' experiences should be considered in implementing classroom change.

In working with individuals involved in change, staff at the UTR&DC found concerns about change to be an important dimension of the process. In their research, "innovation" was the generic name given to the issue, object, problem, or challenge, or the thing that is the focus of the concerns. The innovation and its use provide a frame of reference from which concerns can be viewed and described (Hall, George, & Rutherford, 1977).

Hall and Hord (1987) described "concerns" as a phenomenon confronting everyone faced with new experiences, demands for improvement, and changes. "Concerns theory applies to teachers, principals, teacher educators, and others from a multiplicity of tasks and roles" (p. 58). Their concept of concerns is described as follows:

The composite representation of the feelings, preoccupation, thought, and consideration given to a particular issue or task is called concern. Depending on our personal make-up, knowledge, and experience, each person perceives and mentally contends with a given issue differently; thus there are different kinds of concerns. The issue may be interpreted as an outside threat to one's well being, or it may be seen as rewarding. There may be an overwhelming feeling of confusion and lack of information about what "it" is. There may be ruminations about the effects. The demand to consider the issue may be self-imposed in the form of a goal or objective that we wish to reach, or the pressure that results

in increased attention to the issue may be external. In response to the demand, our minds explore ways, means, potential barriers, possible actions, risk, and rewards in relation to the demand. All in all, the mental activity composed of questioning, analyzing, and re-analyzing, considering alternative actions and reactions, and anticipating consequences is concern. An aroused state of personal feelings and thought about a demand as it is perceived is concern. (p. 58-59)

Fuller identified four major concern clusters as unrelated, self, task, and impact. According to Hall and Hord, these clusters were verified through the research of Fuller and others. Although all concerns focused on teaching, each cluster possessed a different content and dynamic. Hall, Wallace, and Dossette (1973) found that Fuller's developmental concerns concept could be applied to the process of innovation adoption. Long (1994) reported that Fuller's work "provided the basis for developing the Stages of Concern About the Innovation dimension of the Concerns-Based Adoption Model" (p. 33).

The research base indicated the existence of "a set of developmental stages and levels teachers and others moved through as they become increasingly sophisticated and skilled in using new programs and procedures" (Hall & Hord, 1987). While recognizing other variables of the change process, the CBAM position is that the primary focus must be upon the individual innovation user. Other user system variables can be examined in relation to how they affect the concerns of each of the individuals (Hall, 1975).

The Stages of Concern About the Innovation dimension of the CBAM investigates the concerns that users have about an innovation from limited awareness until mastery. The seven stages of concern (SoC) displayed in Figure 1 are identified as Stage 0 - Awareness; Stage 1 - Informational; Stage 2 - Personal; Stage 3 - Management; Stage 4 - Consequence; Stage 5 - Collaboration; and Stage 6 - Refocusing. Hall and Hord (1987) stated that these SoC could be grouped into self, task, and impact dimensions. Long (1994) reported that self-concerns include Stages 0, 1, and 2. This phenomena occurs early in the change process as individuals desire to know more about the innovation. Task-concerns are synonymous with Stage 3 and are associated with the individual becoming more intense during the early period of innovation use. Impact-concerns incorporate Stages 4, 5, and 6 and relate to the individual's attention given to impact on students and improving effectiveness of the innovation.

Figure 1: Stages of Concern about the Innovation

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| 0 | <u>Awareness</u> : Little concern about or involvement with the innovation is indicated. |
| 1 | <u>Informational</u> : A general awareness of the innovation and interest in learning more detail about it is indicated. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use. |
| 2 | <u>Personal</u> : Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the innovation. This includes analysis of his/her role in relation to the reward structure of the organization, decision making and consideration of potential conflicts with existing structures or personal commitment. |

Financial or status implications of the program for self and colleagues may also be reflected.

- 3 Management: Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.
- 4 Consequence: Attention focuses on impact of the innovation on students in his/her immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.
- 5 Collaboration: The focus is on coordination and cooperation with others regarding use of the innovation.
- 6 Refocusing: The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation.

Original concept from Hall, G. E., Wallace, R. C., Jr., & Dossett, W. A. A developmental conceptualization of the adoption process within educational institutions. Austin: Research and Development Center for Teacher Education, The University of Texas, 1973.

Long (1994) reported that CBAM assumptions about change were verified through research. These assumptions are identified as follows:

1. Change is a process, not an event. Change is a process occurring over time, and recognizing this is an essential prerequisite of successful change implementation.
2. Change is accomplished by individuals. Change affects people, and their role in the process is important. Therefore, individuals must be the focus of attention in implementing a new program.
3. Change is a highly personal experience. Individuals are different and do not behave collectively. Each individual reacts differently to change and some will assimilate a new practice more rapidly than others. Change is more successful when its support is geared to the diagnosed needs of the individual users. If change is highly personal, then different responses and interventions are required. By paying attention to each individual's progress one can enhance the implementation process.
4. Change involves developmental growth. Studies indicate that the individuals involved appear to express or demonstrate growth in terms of their feelings and skills. These tend to shift with respect of the new program or practice as individuals pass through a greater degree of experience.
5. Change is best understood in operational terms. Teachers, and others, will naturally relate to change or improvement in terms of what it will mean to them or how it will affect their current classroom practice. Change facilitators can reduce resistance to improvement efforts by addressing questions and communicating with teachers and others involved.

6. The focus of facilitation should be on individuals, innovations, and the context. It is easy to forget that books, materials, equipment, or new programs alone do not make change; only people can make change by altering their behavior. The real meaning of change lies in its human, not its material component.

Long examined several change studies using the CBAM. She noted that “the majority of studies used to verify the CBAM were in educational settings with innovations of instruction, classroom configuration, and instructional administration” (p. 37). Long concluded that the CBAM provided an effective approach of determining individual differences in implementing innovations.

Research Methods and Procedures

The population for this study consisted of educators in 15 original grant-funded JobReady partnerships in North Carolina. Sampling procedures were designed to ensure adequate representation of all educator groups and 15 partnerships. The total sample consisted of 1200 individuals including the following groups: superintendents (N=25), vocational directors (N=36) principals (N=127), assistant principals (N=307), guidance counselors (N=457), academic teachers (N=6567) and vocational teachers (N=1482). The usable return rate for each group was superintendents (80.0%); vocational directors (88.9%); principals (72.2%) assistant principals (70.6%); guidance counselors (68.3%); academic teachers (52.9%), and vocational teachers (65.9%).

The SoC Questionnaire is a dimension of the Concerns-Based Adoption Model (CBAM) which describes the feelings, perceptions, and attitudes of individuals as they consider, approach, and implement an innovation. The CBAM was used by Long in a Virginia study investigating levels of concern when implementing Tech Prep programs (1994).

The SoC Questionnaire consists of 35 statements regarding the seven Stages of Concern. Five statements are related to each Stage of Concern. On a 0 to 7 Likert type scale, respondents indicate the degree to which each concern is true of them. For individuals or groups, computing mean scores for each stage to determine profiles summarizes the data. The higher the mean score, the more intense the concerns at that stage. The SoC Questionnaire also included nine demographic and other informational items on the reverse side. A comment sheet was included with the SoC Questionnaire for participants to share concerns or suggestions based on their experience with JobReady.

The North Carolina instrument was reviewed by a panel of experts and subjected to a field test in order to establish content validity. To determine internal consistency, a correlational analysis of the 35 SoC Questionnaire items was conducted. The analysis yielded a Cronbach Coefficient Alpha of .90 indicating a high degree of internal consistency.

Individuals in the sample were mailed the SoC Questionnaire packet. An over all response rate of 64.6% or 775 usable questionnaires was achieved after two mail and one phone call follow-up. There were no significant differences between early respondents and late respondents.

Findings

The research questions were stated as null hypotheses. Analysis of variance (ANOVA) procedures indicated significant differences between single and multi configured partnerships at the consequence, collaboration, and refocusing stages ($p < .05$). Therefore, H_{01} was rejected. A multivariate analysis of variance (MANOVA) procedure indicated a significant difference among partnerships when categorized as small, medium, large, and extra large. Therefore, H_{02} was rejected. Further analysis (ANOVA) indicated significant differences at the awareness, informational, and collaboration SoC. The Tukey-Kramer post hoc procedure did not detect differences at the awareness and collaboration stages.

Null hypothesis 3 sought to determine if a statistically significant difference existed among the superintendents, vocational directors, principals, assistant principals, guidance counselors, academic teachers, and vocational teachers regarding the SoC of JobReady. A significant difference was indicated by a MANOVA procedure and further analysis (ANOVA) indicated significant differences at each stage of concern (the Wilks' lambda statistic (.6072) was [$F(42,3577) = 9.558, p = .0001$]). Therefore, H_{03} was rejected. The Tukey-Kramer post hoc procedure specified group differences at each concern stage. These differences are summarized in Tables 1- 7.

Null hypothesis 4 sought to determine if highest stages of concern among educator groups were related to perceived level of involvement. Correlation analyses were conducted for the total sample and for each group. The Kendall's Tau b statistic (Kendall's Tau b = .4048, $p = .0001$) revealed a significant positive relationship for the total sample. Therefore, H_{04} was rejected. Positive relationships were indicated for principals, assistant principals, guidance counselors, academic teachers, and vocational teachers.

Table 1. JobReady Stages of Concern Profile for Superintendents

Profile	M	Similar Groups						
Stage 0 – Awareness	6.55*	--	VD	PR	--	--	--	--
Stage 3 – Management	8.40*	--	--		--	--	--	--
Stage 6 – Refocusing	12.30	--	VD	PR	AP	GC	--	VT
Stage 2 – Personal	14.60*	--	VD	--	--	--	--	--
Stage 1 - Informational	16.65	--	--		--	AP	--	--
Stage 4 - Consequence	24.60**	--	VD	PR	--	--	--	VT
Stage 5 - Collaboration	24.80	--	VD	PR	--	--	--	VT

Implications

1. Indicate little need for additional orientation
2. Express less concern about management aspects than all other groups
3. Are relatively comfortable with their role in implementation
4. Are focusing attention on student impact and coordinating with others

Note. Similar groups are based on Tukey-Kramer post hoc analysis

*Lowest mean score of all educator groups

**Highest mean score of all educator groups

VD - Vocational Directors, PR - Principals, AP - Assistant Principals,

GC - Guidance Counselors, AT - Academic Teachers, and VT - Vocational Teachers

Table 2. JobReady Stages of Concern Profile for Vocational Directors

Profile	M	Similar Groups					
Stage 0 - Awareness	6.56	SU	--	PR	--	--	--
Stage 1 - Informational	12.16*	---	--	--	--	--	--
Stage 6 - Refocusing	13.88**	SU	--	PR	--	GC	--
Stage 3 - Management	15.69**	--	--	PR	AP	GC	AT
Stage 2 - Personal	16.06	SU	--	--	--	--	--
Stage 4 - Consequence	22.84	SU	--	PR	AP	GC	--
Stage 5 - Collaboration	25.94**	SU	--	PR	--	--	--

Implications

1. Indicate little need for additional orientation
2. Express less need for information than all other groups
3. Are relatively comfortable with their role in implementation
4. Are focusing attention on student impact and coordinating with others

Note. Similar groups are based on Tukey-Kramer post hoc analysis

*Lowest mean score of all educator groups

**Highest mean score of all educator groups

SU - Superintendents, PR - Principals, AP - Assistant Principals,

GC - Guidance Counselors, AT - Academic Teachers, and VT - Vocational Teachers

Table 3. JobReady Stages of Concern Profile for Principals

Profile	M	Similar Groups						
Stage 0 - Awareness	9.64	SU	VD	--	--	--	--	--
Stage 6 - Refocusing	11.80	SU	VD	--	AP	GC	--	VT
Stage 3 - Management	12.79	--	VD	--	AP	GC	AT	VT
Stage 1 - Informational	20.89	--	--		--	AP	GC	AT
Stage 2 - Personal	20.99	--	--		--	AP	GC	AT
Stage 4 - Consequence	21.30	SU	VD	--	AP	GC	--	
Stage 5 - Collaboration	23.11	SU	--		--	AP	GC	--

Implications

1. Indicate little need for additional orientation
2. Are not considering alternatives
3. Are focusing attention on student impact and coordinating with others

Note. Similar groups are based on Tukey-Kramer post hoc analysis

SU - Superintendents, VD - Vocational Directors, AP - Assistant Principals,
GC - Guidance Counselors, AT - Academic Teachers, and VT - Vocational Teachers

Table 4. JobReady Stages of Concern Profile for Assistant Principals

Profile	M	Similar Groups						
Stage 6 - Refocusing	9.87	SU	--		PR	--	GC	AT
Stage 0 - Awareness	12.20	--	--		PR	--	GC	--
Stage 3 - Management	13.56	--	VD	PR	--	GC	AT	VT
Stage 5 - Collaboration	18.68	--	--		PR	--	GC	--
Stage 4 - Consequence	19.51	--	VD	PR	--	GC	AT	VT
Stage 1 - Informational	19.74	SU	--		PR	--	GC	AT
Stage 2 - Personal	21.24	--	--		PR	--	GC	AT

Implications

1. Are not considering alternatives
2. Indicate little need for additional orientation
3. Have management concerns
4. Indicate need for more information
5. Are concerned about their role in meeting demands

Note. Profile is same as for guidance counselors
Similar groups are based on Tukey-Kramer post hoc analysis

SU - Superintendents, VD - Vocational Directors, PR - Principals,
GC - Guidance Counselors, AT - Academic Teachers, and VT - Vocational Teachers

Table 5. JobReady Stages of Concern Profile for Guidance Counselors

Profile	M	Similar Groups						
Stage 6 - Refocusing	10.37	SU	VD	PR	AP	--	AT	VT
Stage 0 - Awareness	13.67	--	--		--	AP	--	AT
Stage 3 - Management	15.68	--	VD	PR	AP	--	AT	VT
Stage 5 - Collaboration	18.57	--	--		PR	AP	--	--
Stage 4 - Consequence	19.39	--	VD	PR	AP	--	AT	VT
Stage 1 - Informational	21.30	--	--		PR	AP	--	AT
Stage 2 - Personal	22.72	--	--		PR	AP	--	AT

Implications

1. Are not considering alternatives
2. Indicate little need for additional orientation
3. Have management concerns
4. Indicate need for more information
5. Are concerned about their role in meeting demands

Note. Profile is same as for assistant principals

Similar groups are based on Tukey-Kramer post hoc analysis

SU - Superintendents, VD - Vocational Directors, PR - Principals, AP - Assistant Principals, AT - Academic Teachers, and VT - Vocational Teachers

Table 6. JobReady Stages of Concern Profile for Academic Teachers

Profile	M	Similar Groups						
Stage 6 - Refocusing	7.77*	--	--	--	AP	GC	--	
Stage 5 - Collaboration	13.68*	--	--	--	--	--	--	
Stage 3 - Management	14.21	--	VD	PR	AP	GC	--	VT
Stage 4 - Consequence	16.27*	--	--	--	AP	GC	--	
Stage 0 - Awareness	16.92**	--	--	--	--	GC	--	
Stage 1 - Informational	20.78	--	--	PR	AP	GC	--	
Stage 2 - Personal	21.42	--	--	PR	AP	GC	--	

Implications

1. Are not considering alternatives
2. Are not collaborating with others
3. Indicate need for more information
4. Are concerned about their role in meeting demands

Note. Similar groups are based on Tukey-Kramer post hoc analysis

*Lowest mean score of all educator groups

**Highest mean score of all educator groups

SU - Superintendents, VD - Vocational Directors, PR - Principals, AP - Assistant Principals, GC - Guidance Counselors, and VT - Vocational Teachers

Table 7. JobReady Stages of Concern for Vocational Teachers

Profile	M	Similar Groups						
Stage 0 - Awareness	11.45	--	--		PR	AP	GC	--
Stage 6 - Refocusing	12.51	SU	VD	PR	AP	GC	--	--
Stage 3 - Management	15.68	--	VD	PR	AP	GC	AT	--
Stage 5 - Collaboration	20.13	SU	--		PR	AP	GC	--
Stage 4 - Consequence	21.53	SU	VD	PR	AP	GC	--	--
Stage 1 - Informational	22.07**	--	--		PR	AP	GC	
			AT	--				
Stage 2 - Personal	24.71**	--	--		PR	AP	GC	
			AT	--				

Implications

1. Indicate little need for additional orientation
2. Are not considering alternatives
3. Indicate need for more information
4. Are concerned about their role in meeting demands

Note. Similar groups are based on Tukey-Kramer post hoc analysis

**Highest mean score of all educator groups

SU - Superintendents, VD - Vocational Directors, PR - Principals, AP - Assistant Principals, GC - Guidance Counselors, and AT - Academic Teachers

Conclusions

Partnership configuration may have an effect on JobReady SoC. Examination revealed significant differences between single and multi configured partnerships at the higher concern stages of consequence, collaboration, and refocusing. Therefore, practitioners in single configured partnerships have a higher level of concern regarding JobReady impact on students and how JobReady might be improved.

Partnership size may have an effect on JobReady SoC. Examination revealed significant differences at the awareness, informational, and collaboration stages. Based on their similar high mean scores recorded at the informational level, it is concluded that practitioners in extra large and large partnerships have greater needs for more information regarding JobReady than those in small partnerships.

Testing of Ho3 found that educator group may have an effect on stage of concern at each level. At the awareness level, the highest mean score recorded by academic teachers was significantly different from all groups except guidance counselors. The lowest mean score recorded by superintendents was significantly different from all groups except vocational directors and principals. At the awareness level, little concern about or involvement with the innovation is indicated. Based on similar high mean scores recorded at the awareness level, it is concluded that academic teachers and guidance counselors need relatively more introduction and orientation to JobReady. Principals, vocational directors, and superintendents have less need for additional orientation.

At the informational level, similar higher mean scores recorded by vocational teachers, guidance counselors, principals, and academic teachers differed significantly from lower mean recorded by superintendents and vocational directors. At the informational level, the individual displays a general awareness of the innovation and is interested in learning more about it. Based on the comparison of mean scores, it is concluded that vocational teachers, guidance counselors, principals, and academic teachers have relatively more need for information regarding JobReady than vocational directors and superintendents.

At the personal level, the similar lower mean scores of vocational teachers, guidance counselors, academic teachers, assistant principals, and principals were significantly different from similar higher mean scores recorded by vocational directors and superintendents. At the personal level, the individual is unsure about the demands of the innovation and his or her role in it. Based on the comparison of mean scores, it is concluded that vocational teachers, guidance counselors, academic teachers, assistant principals, and principals have relatively more concern for their role in meeting JobReady demands than superintendents and vocational directors. At the management level, the higher mean scores recorded by vocational directors, guidance counselors, vocational teachers, academic teachers, assistant principals, and principals were not significantly different. The lowest mean score recorded by superintendents was significantly different from all other groups. At the management level, attention is focused on the processes and tasks of using the innovation. Based on the comparison of mean scores, it is concluded that vocational directors, guidance counselors, vocational teachers, academic teachers, assistant principals, and principals have similar high levels of concern regarding processes and implementation tasks pertaining to JobReady. Superintendents are less concerned about JobReady processes and tasks than all other groups.

At the consequence level, the higher mean scores recorded by superintendents, vocational directors, principals, vocational teachers, and principals were not significantly different. The lowest mean score recorded by academic teachers was similar to scores recorded by guidance counselors and assistant principals. At the consequence level, attention is focused on the impact of the innovation for students, evaluation of student outcomes, and changes needed to increase student outcomes. Based on the comparison of mean scores, it is concluded that superintendents, vocational directors, principals, vocational teachers, and principals have similar high levels of concern regarding the impact of JobReady on students. Academic teachers, guidance counselors, and assistant principals have less concern regarding the impact of JobReady on students than other groups.

At the collaboration level, the higher mean scores recorded by vocational directors, superintendents, and principals were similar. The lowest mean score obtained by academic teachers differed significantly from all other groups. At the collaboration level the focus is on coordination and cooperation with others regarding use of the innovation. Based on the comparison of mean scores, it is concluded that vocational directors, superintendents, and principals have similar high concern levels regarding cooperation and coordination with others regarding the use of JobReady. Academic teachers have less concern regarding cooperation and coordination with others pertaining to the use of JobReady than superintendents, vocational directors, principals, assistant principals, guidance counselors, and vocational teachers.

At the refocusing level, the higher mean scores of vocational directors, vocational teachers, superintendents, principals, and guidance counselors were similar. The lower mean scores of academic teachers, assistant principals, and guidance counselors were similar. At the refocusing level, the emphasis is on obtaining more universal benefits of the innovation. Based on the comparison of mean scores, it is concluded that vocational directors, vocational teachers, superintendents, principals, and guidance counselors focus relatively more attention on exploration of more universal benefits from JobReady than other groups.

Testing of Ho4 found a significant relationship between respondents' highest stages of concern and perceived levels of involvement for principals, assistant principals, guidance counselors, academic teachers, and vocational teachers. A significant relationship was not found for either superintendents or vocational directors. Based on this finding it is concluded that getting school-based educators involved in JobReady components is a means of advancing concern levels and facilitating implementation.

Discussion

It is likely that more complicated partnership characteristics will impact JobReady leaders' ability to fully implement JobReady. At the highest concern levels of consequence, collaboration, and refocusing, single configured partnerships recorded significantly higher mean scores than multi configured partnerships. These three stages collectively can be categorized as the impact level of concern. When categorized by size, extra large partnerships indicated a greater need of practitioners for more information concerning JobReady than small partnerships. JobReady leaders at the state and local levels must devise strategies to overcome coordination and information dissemination problems that are magnified as partnership size increases or when more than one school system is included. This finding is consistent with Fullan's (1982) work indicating that the change process is complicated by the scope of the change and numerous factors operating at each stage of change.

The findings of this study indicated a significant positive relationship between practitioners' perceived levels of JobReady involvement and highest SoC. This phenomenon is consistent with Long's (1994) finding of a positive relationship between educators' Tech Prep involvement and highest SoC. The significant positive relationships support the research of Bunker and Delisle (1991) indicating that participation in innovation related strategies could facilitate change.

When relationships of perceived JobReady involvement levels with highest SoC were considered for each educator group, all school-based personnel indicated a significant, positive relationship. No significant relationship was indicated for central office administrators (superintendents or vocational directors). The clear implication is that JobReady leaders will have to get school-based educators involved in related components. However, the majority of respondents in this study confessed no increased time spent in JobReady components and no involvement in JobReady professional development activities. Unless the involvement and support of these key educator groups are obtained, JobReady will have little chance of acquiring the prestige, mainstream status, or other essential reform characteristics described by Elford (1993).

Sarason (1995) implied that the first target of educational change must be the attitudes and conceptions of educators. The seven educator groups included in this study must be key change facilitators for successful implementation of JobReady. Educator group was found to have a significant effect at every level of concern. The comparison of educator group mean scores by stage of concern indicates differences among groups and merits further examination.

The SoC profile for superintendents (Table 1) indicates little concern for additional orientation to JobReady or issues related to efficiency, organization, and management demands. In fact, superintendents indicated less intense concern at awareness and management SoC than all other groups. The superintendents' lowest mean score of all groups at the personal level was similar only to vocational directors. This indicates that superintendents are more comfortable with their role in implementing JobReady than school-based educators. The highest mean score of all groups at the consequence stage of concern and second highest mean score at the collaboration level imply that superintendents are focusing attention on JobReady student impact and working with others regarding the initiative. Fullan (1982) identified the superintendents as the most important individual for establishing change patterns in high school districts. Superintendents must translate their knowledge of and high level concerns regarding JobReady into leadership for obtaining involvement and support of school-based practitioners.

The SoC profile for vocational directors (Table 2) indicates little need for additional orientation to JobReady. Less need for additional information is expressed than for all other groups. Vocational directors indicated more intense concern for management aspects of JobReady than all other groups. The mean score of vocational directors at the personal stage was significantly lower than all school-based educator groups. This lack of intense concern at the personal level demonstrates that vocational directors are comfortable with their role in implementing JobReady. The second highest mean score of all groups at the consequence stage of concern and highest mean score at the collaboration level imply that vocational directors are focusing attention on JobReady student impact and working with others regarding the initiative. Fullan (1982) noted the leadership role of central office administrators in implementing and managing change. Similar to superintendents, vocational directors must fulfill this leadership role by translating their knowledge of and high level concerns regarding JobReady into strategies for obtaining involvement and support of school-based practitioners.

The SoC profile for principals (Table 3) indicates relatively little need for further introduction to the JobReady concept. Although not ready to consider alternatives to JobReady and similar to superintendents and vocational directors, they are mainly concerned about the impact of JobReady on students and working with others regarding the use of JobReady. As the school leader, the principal must translate his or her higher level SoC into a school organization and climate conducive to JobReady implementation.

The similar profiles for assistant principals (Table 4) and guidance counselors (Table 5) indicate relatively little concern about JobReady alternatives or need for further introduction to the concept. Unlike higher level administrators, these groups indicate need for more JobReady information and show high concern about their role in meeting JobReady demands. Hall and Hord (1987) commented on the role of assistant principals as change facilitators. Hoyt et al. (1972) recognized the importance of guidance in implementing career-oriented strategies. JobReady leaders and the higher level administrators of this study must clarify the role of assistant principals and guidance counselors in implementing JobReady.

The SoC profile for academic teachers indicates relatively little concern for either JobReady alternatives or collaboration with others regarding the concept. Most intense concern was demonstrated at the awareness, informational, and personal levels that are collectively described as self-concerns. The fact that academic teachers recorded the lowest mean scores of all groups at refocusing, collaboration, and consequence stages and the highest mean score at informational stage imply that JobReady has not been either adequately communicated to or accepted by academic teachers as a reform effort. Richardson (1994) associated teachers' benefits with classroom practice. JobReady leaders must develop strategies designed to incorporate JobReady concepts into the value systems of academic teachers.

The SoC profile for vocational teachers indicates little need for further orientation. However, vocational teachers indicated more intense concern for obtaining JobReady information than all other groups. Vocational teachers also expressed more concern about the personal demands of JobReady and their role in it than all other groups. JobReady leaders and higher level administrators must clarify the roles of vocational teachers in implementing JobReady.

The status of teachers in the implementation of JobReady warrants additional comments. Hall and George (1979) noted the important role of teachers in the complex educational change process. Fullan (1982) found educational change at the classroom level manifested in the use of different teaching materials and new teaching methods. There can be no educational reform until changes occur at the classroom level. Yet, academic teachers indicate greatest need at lower levels of concern. Vocational teachers, while aware of the JobReady concept, show intense concern at the informational and personal levels of concern. JobReady leaders must market the concept to and obtain support from classroom teachers if the initiative is to be sustained and have significant impact on students.

Comparison of educator group SoC profiles reveal that superintendents', vocational directors', and principals' lowest concern stage is awareness while consequence and collaboration are their highest levels. The implication is that these administrators have become knowledgeable about and comfortable with the JobReady reform effort. However, assistant principals diverged from fellow administrators and indicated high concern about their role in implementing JobReady. JobReady leaders should recognize the importance of assistant principals as change agents and identify strategies to educate them on their role in JobReady implementation.

Comparison of educator group SoC profiles reveals additional interesting information. For example, the intensity level of concerns for superintendents is not statistically similar to academic teachers at any stage. Directors are statistically similar to academic teachers at the management level only. Higher level administrators consisting of superintendents, vocational directors, and principals indicated most intense concern at the consequence and collaboration levels. All other groups expressed most intense concern at the personal and informational levels. These phenomena should concern JobReady leaders. JobReady cannot reform schools if gaps exist between school administrators and those educators responsible for essential career guidance and instruction.

Recommendations

As local JobReady partnerships become more complex by either increased numbers of public school students or additional public school systems, JobReady leaders should allocate increased human and material resources. Change strategies must be customized to address JobReady needs of all educator groups. To determine what strategies are appropriate, input should be obtained from each educator group within each partnership. If only higher level administrators are provided mechanisms to advance to higher concern levels while classroom teachers flounder at the personal and informational stages, JobReady is likely to become just another failed reform effort.

JobReady leaders should sponsor activities designed to obtain the involvement of practitioners in all educator groups involved in JobReady components. Based on the results of this study, involvement is an effective means of advancing practitioners to higher concern levels. Appropriate information should be disseminated to assistant principals, guidance counselors, academic teachers, and vocational teachers. This information should focus on making these practitioners more knowledgeable and comfortable with their roles in implementing JobReady. Professional development efforts must be ongoing for school-based JobReady practitioners. These efforts should be aligned with concerns expressed by the practitioners. For example, the particular professional development activity might initially focus on general characteristics, effects, and requirements of JobReady. Later efforts might address organizational or management needs.

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Attitudes of College of Agriculture Freshmen Toward Agriculture

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Introduction and Theoretical Framework

Enrollment in agriculture programs at both the university and high school levels has undergone major changes over the past twenty years. From the peak numbers of the late 1970s, enrollments at the high school level plummeted with the onset of the farm crisis in the late 1970s and early 1980s (Dyer & Osborne, 1994). In the two states whose economies are most closely tied to the agricultural sector, Illinois and Iowa, some of the most drastic changes were reported. In Illinois, agriculture program enrollments decreased by over 60% from a total of 29,502 students enrolled in 397 programs to 11,733 students in 325 programs (Illinois State Board of Education, 1993). In Iowa, an enrollment of 17,293 students in 245 programs dwindled to only 9,161 students in 255 programs from 1976 to 1990, a decrease of nearly 53% (Iowa Department of Education, 1997). Over the same time period, enrollment in Illinois and Iowa public schools decreased by 25% and 20%, respectively, indicating that other factors were contributing to the attrition in agriculture program enrollments (United States Department of Education [USDE], 1996).

This enrollment crisis created a ripple effect that struck at the university level in the late 1980s. Manderscheid (1988) reported a 24% decline in Land Grant University agriculture enrollments and a 13% decrease in non-Land Grant University agriculture enrollments from 1978 to 1988. Paralleling this decrease in university agriculture program enrollments were cutbacks in faculty positions. According to the American Association for Agricultural Education, university agricultural education faculty membership decreased from a 1984 high of 326 members to a 1995 low of 254 members, a decrease of 22% (American Association for Agricultural Education, 1996).

As universities were responding to decreased numbers by downsizing agricultural education departments and programs, high school enrollments in agriculture courses were rebounding. Several states modernized agriculture curricula as suggested by the National Research Council (1988) and reaped almost immediate results in the form of increased student numbers. At an enrollment of nearly 12 million students in 1993-94, high school enrollments are within 10% of the pre-recession enrollments of 13.6 million students, even with a national decrease of just over 20% in the number of school age children (USDE, 1996).

At the university level, colleges of agriculture are also reporting increased enrollments. Litzenberg, Whatley, and Scamardo (1992) reported that with the exception of the North Central Region, agricultural enrollments had recovered to early 1980 levels. According to USDE numbers, 1992 enrollments in colleges of agriculture nationwide have increased by 18.9% over the 1981 enrollment of 802,000 students (USDE, 1996). However, the demographic composition of today's agriculture classes has changed from that of the 1980s. Scofield (1995) reported that 43% of students enrolling in the College of Agriculture at Iowa State University in the fall of 1994 were from urban backgrounds. According to Russell (1993), this lack of agricultural background and/or experience jeopardizes the long term future of the agricultural industry.

Russell warned of an impending "brain drain" in the agricultural industry, jeopardizing its long term future if the loss to the agricultural industry of individuals trained and experienced in agriculture continues.

With an increasing number of freshmen coming from urban backgrounds and/or situations in which they have gained no knowledge of or experience in agriculture, new problems and opportunities have emerged. Colleges of Agriculture must provide information, not only in agriculture, but also about agriculture. However, losses of enrollments translate into losses of dollars from instructional budgets. The needed resources to provide this instruction may not be available.

The problem addressed by this research was how to identify and retain students who are likely to complete a program of instruction and seek employment in the industry of agriculture. The conceptual model for this study emphasized the need to study those factors that influence a student's selection and pursuit of a field of study and corresponding career choice. Fishbein and Ajzen (1975) provided the theoretical framework for this study. They determined that intentions to participate in an activity could be predicted based upon knowledge, observation, or other information about some issue. This suggested that a person's intent to pursue study in a field of agriculture, or to become actively involved in an agricultural career, may be predicted by analyzing his/her beliefs about agriculture. Greenwald (1989) supported this theory, reporting that individuals with positive attitudes toward a subject or situation tend to evaluate them positively.

Purpose

The primary purpose of this study was to assess the attitudes and intentions of Iowa State University College of Agriculture freshmen toward high school and university agriculture programs and the field of agriculture. A secondary purpose was to investigate student attitudes about the role of agricultural educators. The study addressed the following questions:

1. What were the attitudes of College of Agriculture freshmen toward the field of agriculture and educational programs in agriculture?
2. What were the attitudes of College of Agriculture freshmen toward their major areas of study?
3. What was the influence of high school agriculture program experiences on the attitudes of students who are now pursuing agricultural majors?

Procedures

This study used a descriptive survey which was administered to all freshmen in the 1996-97 class of the College of Agriculture at Iowa State University ($N = 513$). A student roster from the College's admissions office served as the population frame for this census study. Survey instruments were mailed during the 1997 spring semester with a follow-up postcard reminder mailed after two weeks. A second instrument packet and reminder postcard were mailed at two-week intervals, respectively. A total of 401 (78%) surveys were returned. A random sample of ten percent of the non-respondents were contacted and completed the questionnaire via telephone. Summated means of these non-respondents were compared to early

and late respondents with no significant differences noted, allowing generalization from the sample to the population.

The two-part questionnaire used in this study was developed and used by Dyer, Lacy and Osborne (1996) and was reviewed for content and face validity by College of Agriculture staff at that time. Part I of the questionnaire addressed demographic information and contained close-ended and partially close-ended questions. Part II of the instrument was divided into three constructs: Attitudes Toward Agriculture as an Area of Study, Attitudes Toward High School Agriculture Programs, and Attitudes Toward University Agriculture Programs. These sections used a five-point Likert-type scale (1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree). Dyer, et al. reported reliability estimates for the three constructs using Cronbach's Alpha ($\alpha = .85, .78, .88$, respectively). Data were analyzed using descriptive statistics, including measures of central tendency and variability.

Results

A majority of students respondents was male (57%, $n = 222$) and Caucasian (97.2%, $n = 369$). African-American, Hispanic, and Asian ethnicity/ancestry were reported by five, four, and two students respectively (1.3%, 1.0%, and .5%) with an additional seven students (1.8%) reporting an ethnicity of "other."

Fifty-four percent ($n = 214$) of the respondents reported having completed at least one high school agriculture course, 47% ($n = 182$) indicated that they were FFA members, and 55.2% had been involved in 4-H. Nearly two-thirds (62.1%) of those students who had completed high school agriculture classes rated the programs as "good" while only 7.5% rated the quality "poor." Nearly half of the respondents ($n = 188$, 47.5%) had farm backgrounds. An additional 28.8% of the students were from rural areas (but not farms) or small towns (<10,000), with the remaining 23.7% of the students indicating their geographical backgrounds were large or medium urban areas.

The majority of the respondents (66.4%, $n = 263$) indicated they had both paid and unpaid experiences in agriculture. Forty-six respondents (11.6%) indicated unpaid work experience only, 22 students (5.6%) reported paid work experience only, while 65 students (16.4%) indicated they had no agricultural experience prior to enrolling in the College.

Sources of information cited as most helpful in informing students about the College of Agriculture and/or Iowa State University included brochures (32.2%), campus visits (24.0%), letters from staff (20.7%), phone calls (9.4%), and personal contacts from faculty (6.7%).

Research Question 1: *What were the attitudes of College of Agriculture freshmen toward the field of agriculture and educational programs in agriculture?*

The attitudes of College of Agriculture freshmen toward the field of agriculture were generally positive. As indicated in Table 1, students viewed the field of agriculture as both scientific and technical. They disagreed with the statement that only students with farm backgrounds should pursue agricultural careers ($M = 1.55$). While less than half (45.9%) agreed that most people have a positive image of agriculture, 70.7% agreed that the image was improving.

Table 1
Attitudes Toward Agriculture as an Area of Study

Statement	Agree* f (%)	Uncertain f (%)	Disagree* f (%)
Agriculture is a scientific area of study.	371 (93.7)	19 (4.8)	6 (1.6)
Most people have a positive image of agriculture.	182 (45.9)	108 (27.3)	106 (26.7)
Agriculture is a highly technical field of study.	343 (96.7)	44 (11.1)	9 (2.3)
The image of agriculture is improving	280 (70.7)	88 (22.2)	28 (7.1)
Only students with farm backgrounds should pursue careers in agriculture.	13 (3.3)	22 (5.6)	361 (91.1)

*The term "agree" includes the combined responses of "strongly agree" and "agree". The term "disagree" includes the combined responses of "strongly disagree" and "disagree."

Respondents were very supportive of high school agriculture programs (Table 2). Over three-fourths (75.7%) of freshmen in the College of Agriculture agreed that more students should be encouraged to take high school agriculture classes. Accordingly, over two-thirds agreed (68.5%) that high school agriculture courses were applicable to college preparatory programs and that these courses were good preparation (58.7%) for studying agriculture in college. The students disagreed with the statements that that high school agriculture courses are better suited for male students and that only students pursuing careers in agriculture should enroll in high school agriculture.

Table 2
Attitudes Toward High School Agriculture Programs

Statement	Agree* f (%)	Uncertain f (%)	Disagree* f (%)
More students should be encouraged to enroll in high school agriculture programs.	299 (75.7)	76 (19.3)	20 (5.1)
College-bound students should be encouraged to enroll in high school agriculture programs.	271 (68.5)	95 (24.0)	30 (7.6)
High school agriculture is good preparation for college study in agriculture.	231 (58.7)	137 (34.8)	26 (6.6)
High school agriculture should become less vocational.	80 (20.3)	207 (52.5)	107 (27.2)
High school agriculture should become more scientific.	172 (43.6)	176 (44.7)	46 (11.7)
High school agriculture classes are better suited to male students.	65 (16.5)	104 (26.3)	225 (57.1)
High school study in agriculture is easier than in other subjects.	131 (33.4)	177 (45.0)	85 (21.6)
High school agriculture courses are beneficial for higher-achieving students.	151 (38.5)	197 (50.3)	44 (11.2)
High school agriculture courses are beneficial for lower-achieving students.	138 (35.0)	201 (51.0)	55 (13.9)
Most high school students should take some course work in agriculture.	240 (60.6)	102 (25.8)	54 (13.7)
Only students pursuing careers in agriculture should enroll in high school agriculture courses.	39 (9.9)	59 (14.9)	298 (75.3)

*The term "agree" includes the combined responses of "strongly agree" and "agree". The term "disagree" includes the combined responses of "strongly disagree" and "disagree."

Students generally believed that everyone would benefit from college course work in agriculture (see Table 3). Approximately two-thirds (66.1%) of the respondents agreed with the statement that more students should be encouraged to enroll in college agriculture courses. Likewise, 66.7% of the freshmen disagreed with the statement that only students pursuing careers in agriculture should enroll in college agriculture courses. More than three-fourths (76.1%) of the students surveyed disagreed that college agriculture courses are better suited to male students.

Table 3
Attitudes Toward University Agriculture Programs

Statement	Agree* f (%)	Uncertain f (%)	Disagree* f (%)
More students should be encouraged to enroll in university agriculture programs.	261 (66.1)	112 (28.4)	22 (5.6)
College agriculture classes are better suited to male students.	19 (4.9)	75 (19.0)	300 (76.1)
College study in agriculture is easier than in most other subjects.	42 (11.9)	93 (23.8)	224 (64.3)
Most college students should take some course work in agriculture.	191 (48.3)	128 (32.3)	77 (19.5)
Only students pursuing careers in agriculture should enroll in college agriculture courses.	66 (16.6)	66 (16.7)	264 (66.7)

*The term "agree" includes the combined responses of "strongly agree" and "agree". The term "disagree" includes the combined responses of "strongly disagree" and "disagree."

Research Question 2: What were the attitudes of freshmen College of Agriculture students toward their major area of study?

Nearly all students indicated they were happy in the College of Agriculture. Only 5.9% of the respondents indicated they were planning a change of colleges (see Table 4) and only 6.5% intended to enroll in another university. Likewise, most respondents ($n = 294$, 82.7%) reported no intent to change majors. Thirty-one students (8.8%) indicated a definite plan to change of majors, whereas 30 students (8.5%) indicated a possible change.

Table 4
College of Agriculture Freshmen Planning to Change Colleges and/or Majors

Major	N	Students contemplating change of college		Students contemplating change of majors	
		n	%	n	%
Agricultural Systems Technology	16	0	0.0	2	12.5
Agronomy	16	0	0.0	3	18.7
Animal Science, Pre-Vet, Dairy Science	135	5	3.7	20	14.8
Horticulture, Turfgrass Management	25	0	0.0	4	16.0
Agricultural Studies	32	0	0.0	3	9.4
Agricultural Business	51	5	9.8	6	11.8

Table 4 (continued)
College of Agriculture Freshmen Planning to Change Colleges and/or Majors

Major	N	Students contemplating change of college		Students contemplating change of majors	
		<u>n</u>	%	<u>n</u>	%
Genetics, Zoology	11	2	18.8	4	36.4
Agricultural Education	15	0	0.0	1	6.7
Agriculture-Undeclared	14	4	28.6	7	50.0
Forestry	12	1	8.3	4	33.3
Animal Ecology	18	3	16.7	1	5.6
Microbiology	13	2	15.4	3	23.1
Food, Nutritional Science	4	0	0.0	1	25.0
Public Service Administration	3	0	0.0	1	33.3
Environmental Science	1	0	0.0	0	0.0
Biochemistry	2	0	0.0	1	50.0
Totals	350	22	5.9	61	17.3

Research Question 3: *What was the influence of high school agriculture program experiences on the attitudes of students who are now pursuing agricultural majors?*

A majority ($\underline{n} = 214$, 54%) of the College freshmen reported course work in high school agriculture whereas 182 students (46%) reported no high school course work in agricultural education. Of those who did not complete agriculture course work, 68.7% did not have access to a high school program. The second most cited reason was a conflict with college preparatory courses.

Almost all students ($\underline{n} = 197$, 97.0%) from high school agriculture programs indicated that they intended to graduate from the College of Agriculture and pursue a career in agriculture. Only six students indicated otherwise. By comparison, 90.5% ($\underline{n} = 152$) of those students who did not enroll in high school agriculture programs indicated that they plan to graduate in the College of Agriculture. Sixteen students indicated intents to change colleges.

Of the 169 students who had been enrolled in high school agriculture programs and were also FFA members, 166 (98.2%) indicated intentions to graduate with a degree in the College of Agriculture. Likewise, of the 198 students who had been 4-H members, 192 (97.0%) also indicated intentions to graduate through the College of Agriculture.

Students who had completed high school agriculture courses expressed more positive attitudes toward educational programs in agriculture (see Table 5). In addition, these students disagreed ($\underline{M} = 1.62$) with the statement that only students with farm backgrounds should pursue careers in agriculture. Students with no high school agriculture course work strongly disagreed with the statement ($\underline{M} = 1.43$).

Table 5

Comparison of Attitudes of High School Agriculture Program Versus Non-Program Graduates

Statement	No High School Agriculture		High School Agriculture	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Agriculture is a scientific area of study.	4.37	.72	4.37	.61
Most people have a positive image of agriculture	3.19	1.00	3.28	.99
Agriculture is a highly technical field of study.	4.07	.72	4.19	.67
The image of agriculture is improving.	3.77	.82	3.87	.84
More students should be encouraged to enroll in university agriculture programs	3.63	.80	3.92	.81
More students should be encouraged to enroll in high school agriculture programs	3.73	.91	4.37	.77
College-bound students should be encouraged to enroll in high school agriculture courses.	3.68	.97	4.11	.89
High school agriculture is good preparation for college study in agriculture.	3.46	.85	4.13 ^a	.97
High school agriculture should become less vocational.	3.05	.69	2.82	.96
High school agriculture should become more scientific.	3.39	.73	3.37	.91
Only students with farm backgrounds should pursue careers in agriculture.	1.43	.64	1.63 ^a	.85
High school agriculture courses are better suited to male students.	2.46	1.08	2.20	1.14
College agriculture courses are better suited to male students.	1.96	.91	1.87	.81
High school study in agriculture is easier than in most other subjects.	3.00	.63	3.29	1.12
College study in agriculture is easier than in most other subjects.	2.29	.94	2.27	.96
High school agriculture courses are beneficial for higher-achieving students.	3.10	.60	3.51 ^a	.91
High school agriculture courses are beneficial for lower-achieving students.	3.01	.68	3.44	.93
Most high school students should take some course work in agriculture.	3.35	.87	3.82 ^a	.90

Table 5 (continued)

Comparison of Attitudes of High School Agriculture Program Versus Non-Program Graduates

Statement	No High School Agriculture		High School Agriculture	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Most college students should take some course work in agriculture.	3.26	.93	3.43	.99
Only students pursuing careers in agriculture should enroll in high school agriculture.	2.34	.84	2.00	.89
Only students pursuing careers in agriculture should enroll in college agriculture.	2.45	.91	2.30	.91

^aMeans were categorically different. Categories of agreement were: "Strongly Disagree" (\bar{M} = 1.00-1.49), "Disagree" (\bar{M} = 1.50-2.49), "Uncertain" (\bar{M} = 2.50-3.49), "Agree" (\bar{M} = 3.50-4.49), and "Strongly Agree" (\bar{M} \geq 4.50).

Students indicated that the most influential person in their decision to attend the College of Agriculture was their high school agriculture teacher (20.0%), followed by high school guidance counselor (16.4%), sibling (10.9%), parent (7.3%), and friend (5.5%). For those students who had decided to transfer out of the college/university, most common influences were relatives/friends (25%), teachers (10%), perceived lack of job opportunities (10%), academic pressure (10%), and not feeling part of the program (10%).

Conclusions, Recommendations, and Implications

Nearly all students indicated they were happy in the College of Agriculture. Less than 6% of the respondents indicated a likely change of colleges. These numbers contrasted sharply with those reported by Dyer, Lacey, and Osborne (1996). Dyer, et al. reported that nearly 40% of the freshmen class in the College of Agriculture at the University of Illinois at Urbana-Champaign intended to leave the College of Agriculture prior to graduation. In addition, the researchers reported that nearly 50% of the U of I freshmen intended to change majors within the College as compared to 17.3% at Iowa State. Why do students choose to remain in one college but leave another? Given the geographical and peer comparisons between the two institutions, further study should contribute to understanding students' rationale.

The College of Agriculture at Iowa State University continues to attract students with farm or rural backgrounds and who have completed high school agriculture courses. The researchers in this study found that the percentage of students coming from large or medium urban areas had declined from 43% in 1995 to 23.7% in 1996. This finding supports a recent article appearing in the Des Moines Register (Pins, 1997) which indicated that a "rural rebound" is occurring throughout the United States as three-fourths of the nation's 2,304 non-metro counties are growing. This is in contrast to growth rates in the 1980s when less than half of Iowa's counties experienced an increase in population. If the same phenomenon is occurring nationwide, this increase in population in rural areas should fuel enrollment and resources into colleges of agriculture and provide even greater demand for additional high school agriculture

programs. Major efforts and support from universities should be expended in providing assistance in establishment of those programs.

High school agriculture programs are good investments by those interested in promoting agriculture. Likewise, graduates of these programs are good investments by colleges of agriculture. Students who have enrolled in high school agriculture, and those who were involved in FFA and/or 4-H, are more likely to complete a four-year degree in the College of Agriculture and choose agriculture as a career than are freshmen who have not had those experiences. The research indicated that 97% of students that enrolled in high school agriculture plan to graduate from the College of Agriculture and pursue a career in the industry. This percentage increased slightly if students were also involved in FFA and remained constant for those involved in 4-H. The College of Agriculture should target high school agriculture programs in its recruitment program. By directing recruitment efforts toward this group of students, the College of Agriculture can make more efficient use of resources and increase retention rates.

Many secondary students in Iowa do not have the opportunity to enroll in high school agriculture programs. This study found that of those students not enrolling in high school agriculture, 68% did not have access to such a program. The second most cited reason was a conflict with college preparatory courses. The number of high school agriculture programs in the state should increase so that all students have access to agricultural experience, and classes should be offered at times that will minimize scheduling conflicts. An increase in the number of, and enrollment in, high school agriculture programs, should provide the College of Agriculture even greater enrollment and retention opportunities.

High school agriculture teachers continue to play an important role in assisting students in determining whether or not to pursue a college degree. Twenty percent of the respondents indicated their agriculture teacher was the most influential source in making this decision. High school guidance counselors, siblings, and parents were respectively mentioned as the most influential person by 16.4%, 10.9%, and 7.3% of the respondents. The College of Agriculture should recognize the importance of teachers of agriculture and continue to nurture these relationships. In addition, the College should keep these individuals informed of program changes and related information. By maintaining a positive relationship with teachers, counselors, parents, and siblings, the College can be more effective in its recruitment efforts.

The College of Agriculture should devote adequate resources to brochure development and distribution. Over 32% of the freshmen indicated that brochures were the most helpful source of information. Campus visits and letters from staff were respectively ranked by 24% and 20.7% of the respondents as the most effective source of information. Additionally, 6.7% of the respondents indicated that personal contacts from faculty were useful. The College should continue to provide quality recruitment brochures and encourage campus visits as part of its recruitment plan.

The College of Agriculture should explore the use of alternative retention activities (such as learning communities/teams, etc.) for incoming freshmen. For those students who had decided to transfer out of the college/university, 10% indicated their reason as not feeling part of the program. While learning teams have only been in existence in the College of Agriculture for two years, anecdotal evidence indicates that these teams help ease the transition to college life by creating a "family" away from home. Further research to determine the usefulness of these teams is warranted. Likewise, a follow-up study should be conducted during respondents' senior years to determine if respondents have followed through on their stated intentions.

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SAFETY ISSUES IN AGRICULTURAL EDUCATION LABORATORIES

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Introduction and Theoretical Framework

The most important consideration of any laboratory teacher should be the provision for safety of all participants. What and how students learn must be secondary to the physical safety of both students and teachers in agricultural education laboratories (Bruening, Hoover, & Radhakrishna, 1991).

Parents place a premium on the safety of their children. They expect their children to be educated in the proper and safe use of all tools, equipment, and materials which the student will use. Even in instances where all precautions have been taken, the potential for serious injury still exists. Not only is safety an important *consideration* for educators, but a moral, professional, and legal *obligation* as well (Daniels, 1980; Gliem & Hard, 1988). The primary responsibility for providing safety instruction and a safe learning environment rests with the teacher (McMahon, 1975).

While programmatic research is expected across disciplines, it is imperative that study in this area of inquiry focus on the problems associated with agricultural education laboratory safety and address those problems in an orderly, systematic approach. In doing so, the need existed for a thorough review of research to critically examine its status and provide the profession with a basis from which to direct future research efforts.

The theoretical framework for this study was furnished by Williams (1991) in his "Dimensions of Agricultural Education" model. Williams noted that "we must fully understand the dimensions of agricultural education before we can successfully focus our research" (p. 8). Review and acknowledgment of past research, coupled with identification of voids in the current knowledge base is an effective method of fostering that understanding and bringing focus.

Purpose and Objectives

The purpose of this investigation was to synthesize research related to safety in high school agricultural education laboratories. The study was guided by the following objectives:

1. Identification of research in agricultural education laboratory safety.
2. Identification of deficiencies in research related to agricultural education laboratory safety.

Procedures

Historical research methods were utilized to accomplish the objectives of this study. Four sources were used to gather data to meet the objectives of the study: Journal of Agricultural Education, Dissertation Abstracts International, Proceedings from Regional and National Agricultural Education Research Meetings, and ERIC Documentation Reproduction Service. Studies appearing in these references were located through a library systems search completed at two Midwestern universities and consisted of articles published through May, 1997.

Findings

Objective 1: Identification of research in agricultural education laboratory safety.

Occurrence of Accidents

Agricultural education laboratories are potentially hazardous learning environments. In studies involving high school agricultural education programs, Swan (1993) reported a mean of 1.3 major (requiring medical attention) student accidents and 13.3 minor accidents (requiring bandage but not medical attention) per year. Lawver (1992) reported a mean of 0.8 major student accidents per year, with a range of 0-13 accidents per teacher. Nearly 42% of the respondents reported at least one accident. A second study by Lawver and Frazee (1995) reported a mean of 3.19 injuries which required medical attention.

Gliem and Miller (1993b) conducted a study involving schools which had agriculture laboratories and had been engaged in litigation resulting from student injury. The researchers reported the range in number of injuries as 0-14. Hard (1990) reported a majority of accidents occurring primarily in the woodworking or welding/metals area.

Teacher Liability

While many agricultural educators may be doing a good job of instructing students in safety, many others are vulnerable to legal action if an injury occurs. According to Reece (1980) and Laird and Kahler (1995), agriculture instructors agree that laboratory safety is important. Likewise, Gliem and Miller (1992a) reported that 100% of the administrators responding to their survey indicated that teachers instruct students in how to properly use equipment and demonstrate that usage, and 97.7% give students an equipment test. However, while instructors perceive written documentation to be important (Johnson & Schumacher, 1988, 1989), they generally fail to maintain written reports (Lawver, 1992; Swan, 1993). Of concern, Gliem and Miller reported that 15.6% of the administrators in their study reported that teachers leave the laboratory while students are using dangerous equipment or chemicals.

Teachers may be lax in their responsibility to know and conform to local, state, and national safety laws. Bruening, Hoover, and Radhakrishna (1991) reported the greatest deficiency of Pennsylvania agricultural mechanics teachers was knowledge of state safety laws. Reneau and Poor (1983) reported that teachers only scored 68.2% on a liability survey given to determine teachers' knowledge of liability issues. Rudolph and Dillion (1984) noted that only 17 of the 37 safety standards were being met by more than 50% of the agricultural education departments in their study. Hard (1990) reported that nearly 50% of the teachers in his study did not know the recommended guidelines for noise, lighting, or ventilation requirements of their laboratories, 51% considered their tools unsafe to operate at times, and nearly 90% believed themselves to be

careless in the laboratory. According to Hard and Miller (1990), whereas nearly all teachers (97%) considered knowledge of safety laws important, 24% indicated they did not know the laws.

Fletcher and Johnson (1990) concluded that teachers were not using recommended safety practices or providing student safety and emergency equipment to the extent warranted by the hazards present in the agricultural mechanics laboratory. These conclusions supported earlier findings by Lamb (1985) in a Missouri study.

It may be possible to identify students and/or teachers who are potential safety risks prior to their entering a laboratory setting. Indicators such as low emotional and behavioral control (Pulkkinen, 1995) and the identification of students with low self-esteem (Bettis & Crawford, 1972) may be used to identify students likely to be safety risks. The researchers recommended that students who were identified as accident repeaters be given additional attention or safety instruction. Plummert (1995) found that students overestimate their physical abilities and noted that this could be related to their accident proneness.

Availability of Safety Equipment

Bennett (1984) concluded that providing a safe learning environment for public school agricultural education programs is a problem in most schools. Swan (1992) reported that instructors were not using recommended safety practices, and that school systems were not providing students with adequate safety equipment. Gliem and Miller (1993a) also reported the availability of safety equipment/materials to be lacking in some schools.

Concerning availability of safety equipment, researchers have provided similar lists of safety equipment found in agricultural mechanics laboratories. The most frequent available equipment/materials are fire extinguishers, welding gloves, screens, booths, exhaust systems, fire alarms, safety glasses, safety guards, first aid kits, exit signs, posted eye safety regulations, safety posters at power tools, safety zones, and safety cans for flammable liquids (Bruening, Hoover, & Radhakrishna, 1991; Fletcher & Johnson, 1990; Lawver, 1992; Swan, 1993). Panic buttons were the least frequently reported safety item by Swan (1993). Bennett (1984) listed the most common safety hazards found in Mississippi high schools to be: lack of exit signs, equipment without guards, ungrounded extension cords, absent or uninspected fire extinguishers, and inadequate paint storage.

Instructional Techniques

Instructors use a variety of materials while teaching safety, but limit their instructional repertoire to demonstration. Instructors used safety exams, manuals, safety related subject matter, clean-up schedules, inspections, booklets, videotapes, and worksheets most often as instructional materials/practices (Bruening, Hoover, & Radhakrishna, 1991; Lawver, 1992; Swan, 1993). Teachers listed the operation of power tools, eye protection, use of hand tools, and electrical safety as the most important safety instructional topics (Lawver).

Teacher Preparation

The role of teacher educators is important in developing the safety proficiency of pre-service and current teachers (Gliem & Miller, 1993a). However, studies have indicated several voids exist in teacher preparation in laboratory safety (Forsythe, 1982, 1983; Forsythe & Terry, 1981; Jarrett, 1967; Rosencrans, 1996). In national studies of teacher educators, Forsythe (1982, 1983) and Forsythe and Terry (1981) concluded that teacher educators provide minimal experiences and

instruction designed to develop teacher competency in safety.

Another void exists in the amount of continuing instruction provided to experienced teachers. According to Bennett (1984) and Lamb (1985), teachers with less experience place more emphasis on laboratory safety than do experienced teachers. Likewise, Schumacher and Johnson (1990a, 1990b) reported the average agriculture teacher in Missouri placed less perceptual importance on safety-related competencies than did student teachers. Additional training in the form of inservice workshops, training seminars, or additional course work has been recommended by Everett (1982); Fletcher and Johnson (1990); Forsythe and Terry (1981); Hard and Miller (1990); Johnson, Schumacher, and Stewart (1990a, 1990b); and Umbaugh (1989).

Administrators' View of Safety

Safety is important to administrators (Gliem & Miller, 1992a, 1992b, 1993b). They overwhelmingly agree that safety instruction should be included as part of the curriculum (1992b, 1993b). However, most administrators depend on the knowledge and expertise of teachers in providing a safe environment and believe that teachers are responsible for the repair and maintenance of laboratory equipment (1992b, 1993b).

There is an apparent connection to administrators' attitudes toward laboratory safety and teacher actions. Gliem and Miller (1992a) reported significant positive correlations between administrator's safety attitude and the teacher's preparedness to provide safety instruction, the number of safety materials/equipment available, and the number of teacher safety practices used.

Student Attitudes Toward Safety

Students' safety attitudes are significantly and positively related to their perceptions of instructor and parental safety attitude (Hard, 1990; Harper, 1984; Harper & McCracken, 1984); their agricultural mechanics safety knowledge; employer's safety attitudes; teacher's, parent's, and employer's safety knowledge; and school, home, and workplace safety environment (Harper, 1984; Harper & McCracken, 1984).

Instructor Attitudes Toward Safety

Laird and Kahler (1995) reported that instructors considered safety to be the most important unit of instruction in agricultural mechanics laboratories. Maines (1989) reported the antecedent variables explaining instructor safety attitudes were instructor age, years of teaching experience, the instructor's having had a serious accident, and/or having had a close friend or relative killed in a work-related accident. Furthermore, Maines identified the best predictors of instructor safety attitude as the instructor's perception of his/her health hazard knowledge base, the instructor having had a serious accident in the past, and the instructor having had horticulture as a specialty area. Lawver and Frazee (1995) reported inconsistencies between teachers' attitudes toward safety and the teaching of those practices.

Noise levels

Some studies have reported that while noise is a concern, it is not a problem (Madou-Bangurah, 1978; Shell, 1972). Others have examined effects of noise on students and warn of the dangers of noise created in these learning environments (Miller, 1986, 1988, 1989; Miller, Jacobs, & Schimpp, 1992; Reynolds, 1990; Weston & Stewart, 1980; Woodford, Lawrence, & Bartrug, 1993).

Miller (1988, 1989), Reynolds (1990), and Miller, Jacobs, and Schimpp (1992) all concluded that both students and teachers are routinely experiencing significant and potentially damaging noise exposure during welding in school laboratories. Jewell (1979) noted that as noise intensities increased in the learning environment, the amount of time necessary to complete a task also increased. Miller (1986) concluded that performance loss in cognitive and motor domains may be reduced by providing effective hearing protection devices in noisy environments. However, Miller and Schimpp (1993) noted that the intensity of noise is not the primary factor in reduction in performance, but rather the interaction from the nature of the noise. They recommended teachers determine the nature of noise, rather than try to eliminate all of it.

Teachers are also susceptible to hearing problems. Burke (1987) reported hearing loss greater in agricultural education teachers than that observed in other people of the same age group. Woodford, Lawrence, and Bartrug (1993) noted that all of the instructors in their study had high frequency loss of hearing greater than 25dBHL.

Ventilation

Only one study was found which mentioned the safety problems associated with ventilation/dust/smoke. Madou-Bangurah (1978) noted that in laboratories where smoke and/or dust were problems, either no ventilation or improperly installed ventilation was the cause.

Objective 2: Identification of deficiencies in research related to agricultural education laboratory safety.

In analyzing the findings from this research, several areas of deficiency were found. Future research should seek to answer the following questions:

1. What factors influence teachers' attitudes toward safety?
2. How do teachers acquire safety knowledge and develop positive safety attitudes?
3. What factors contribute to the variance in laboratory?
4. How should safety training differ for the varying types of agricultural laboratories?
5. Which teaching methods are most effective in generating student motivation towards safety?
6. Which laboratory activities constitute the greatest hazards to students and teachers?
7. What demographic factors influence student and teacher safety knowledge, attitudes, and practices? (i.e., geographic background, ethnicity, age, grade level, gender)
8. Is there a relationship between level of achievement and safety attitude?
9. How do teacher record keeping practices affect the propensity for litigation?

10. What are the inservice needs of teachers?
11. What are the major causes of serious and/or minor accidents in the laboratory?
12. Are there curricula which are not appropriate for high school agricultural laboratory instruction because of the danger involved?
13. What are the characteristics of individuals most likely to be safety risks in the laboratory setting?
14. What are the dangers of prolonged exposure in a laboratory environment to agriculture teachers?
15. What is the effect of cumulative noise (home, school, work) on students' hearing and/or performance?

Conclusions and Recommendations

Overall, research addressing the problem of safety in agricultural mechanics laboratories can best be characterized as a mixture of descriptive, survey, and experimental studies. To a greater extent than most other areas of agricultural education, research in the area of agricultural mechanics has also been relatively programmatic. In areas examining instructional methods and the effects of noise, a sound empirical base of knowledge has been established from which future research efforts may be directed.

Agricultural education laboratories are potentially hazardous places for both work and study. Due to the nature of these laboratories, the inexperience of students who participate, and the proximity to dangerous equipment and chemicals, the potential for injury exists. Teachers should make every effort to minimize these risks by preparing themselves to effectively and safely manage these laboratories and to provide first aid assistance if needed. Likewise, administrators should assume a more active role in monitoring laboratory safety and in the procurement of necessary safety equipment and/or materials.

While teachers claim to support the concept of laboratory safety, many fail to fully implement safety guidelines and practices to the extent warranted by the hazards present. This failure results in increased danger to both students and teachers, and increased liability to teachers. Strategies to involve all partners (students, teachers, parents, and administration) in laboratory safety programs should be developed and tested.

Generally, teachers appear to be remiss both in their knowledge of local, state, and national safety laws and in their performance in providing a safe environment for themselves and their students. In nearly all studies reviewed, safety violations were noted. Likewise, a serious void exists in teacher safety preparation. Pre-service teachers are leaving colleges without being adequately trained in first aid measures or prepared to safely manage agricultural laboratories. Experienced teachers are even less safety conscious. Furthermore, no research showed that local school systems are addressing the safety-related deficiencies of their employees. A safety education course, complete with first aid certification, should be a requirement by all teacher education programs. Pre-service and inservice workshops/seminars should be incorporated into

teacher education programs to more adequately prepare teachers to address safety-related concerns.

The possibility may exist to identify students and teachers who are possible safety risks prior to their entering a laboratory setting. Research in this area should be further explored in pursuit of the development of an instrument that could be used throughout the teaching profession.

Noise levels typically found in agricultural mechanics laboratories constitute a nuisance, affect performance, and may be dangerous to students and teachers. Because of student and teacher exposure of high levels of noise outside the laboratory setting, every effort should be made to limit exposure during laboratory classes. All students and teachers should wear hearing protection devices during laboratory classes in which noise levels approach OSHA limits.

Most of the research conducted to date focuses on the hazards of the laboratory environment to students. Additional research is needed concerning the prolonged exposure to teachers in laboratory settings.

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FACTORS INFLUENCING FEMALES CHOOSING NONTRADITIONAL VOCATIONAL-TECHNICAL OCCUPATIONS

Dissertation Summary

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Southern Illinois University, April 1996

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INTRODUCTION

The phenomenon of increasing numbers of women choosing nontraditional occupations has evolved most noticeably during the last two decades. Social, political and economic factors have combined to give females more choice in selecting their type of work.

Lynn Shaw, an electrician profiled in Blue Collar Women: Trailblazing Women Take on Men-Only Jobs (Ferguson, 1994), expressed her feelings about nontraditional work in the following way.

I think the biggest significance of women working in nontraditional work is breaking down gender roles. People need to get jobs on the basis of interest and abilities. In our society, there are strict race and gender lines. Only a few people are doing this work. Gender roles are very limiting. Increased numbers will break down the perception that this is man's work. (p. 115)

In the United States, more women are in the workforce than ever. The 1995 Statistical Abstract records the participation rate of females in the civilian workforce as 58.8%, up from 57.5% in 1990, and 51.5% in 1980 (U.S. Bureau of the Census). In 1900, just one in five women was working for wages (Macionis, 1994). Although the range of occupations is expanding as more women work, the type of work women choose is still affected by strong cultural and historical traditions and constraints.

Women earning baccalaureate and advanced degrees have noticeably joined the white collar ranks. For example, between 1972 and 1990, the proportion of female lawyers to total lawyers rose from 4% to 21% and female physicians rose to 38%, nearly double their 1972 proportion (U.S. Bureau of Labor Statistics, 1991).

However, significant numbers of women still work in clerical and service jobs which are predominately female, and offer wages considerably less than the male jobs requiring the same level of education. The skilled trades and technical occupations are overwhelmingly male. For example, 98.1% of masons and metal workers are male, as well as 70.1% of computer specialists (U.S. Bureau of Labor Statistics, 1994). Jobs in these trade and technical areas offer wages 20-30% higher than comparable female-dominated occupations like health-care (Bleakley, 1994).

The term nontraditional in this study refers to occupations in which women comprise 25% or less of the population (Schwartz and Zimmerman, 1992). Both vocational-technical and professional occupations are classified in this manner.

Significance of the Study

As more women enter the workforce as primary, or much needed secondary, household income providers, the factors affecting their occupational choice are of interest to educators,

social scientists, politicians and the business community. Recently, nontraditional jobs for women have become very related to the controversies surrounding single mothers and welfare. Most of the jobs for which poor women are qualified pay poorly. A move away from low paying traditionally female work is crucial as the demographics of poverty are examined.

In response to the many welfare programs concerned with only getting jobs of any type, economist Rebecca Blank stated "I am extremely concerned about asking women to make it in a labor market where they can't earn enough to support their family" (Trammel, 1995, p.30).

Malloy (1993) also voiced concern that women "are still training for jobs which will not enable them to achieve their goals of a financially rewarding career" (p.102). Therefore, even in the face of long-standing genderized occupations, it seems inevitable that interest in nontraditional training will continue in the future.

Statement of the Problem

What factors influence females choosing nontraditional vocational-technical occupations?

Other related and specific research questions included:

What demographic differences exist between females choosing traditional vocational-technical occupations and those choosing nontraditional vocational-technical occupations?

What factors are considered advantages and disadvantages of traditional and nontraditional occupational choices by females choosing those occupations?

What are the perceived barriers for females entering nontraditional occupations according to those choosing such careers as well as staff members at training institutions with nontraditional students?

What opinions do staff and nontraditional students hold regarding recommending nontraditional occupations for females?

REVIEW OF RELATED LITERATURE

Social and Economic Issues

The changing demographic and social character of the U.S. workforce has been influenced by a number of factors including, the decline of family farms, the growth of cities, the rising divorce rate, increasing numbers of single mothers, decreasing family size, and changing societal norms regarding appropriate roles for women.

Recent economic stagnation and past inflationary periods have reduced the real income of many families in the U.S. These conditions have in turn increased the number of two-income families to almost 60% (U.S. Bureau of Labor Statistics, 1994). Fifty-nine percent of all married women work outside of the home, as do 60% of married women with children under six. Sixty percent of divorced women with children under six work, and 80% of divorced mothers with older children work (U.S. Bureau of Labor Statistics, 1994).

Since the 1970s, the number of single working mothers has dramatically increased. In 1990, 5.8 million single mothers were working compared with 4.4 million working in 1981, and 2.1 million in 1971. The economic fate of many families headed by women is bleak. The feminization of poverty has been identified as a troubling American trend. "Of all poor families, 52.4 percent are headed by women with no husband present, while just 5.9 percent of poor families are headed by single men" (Macionis, 1994, p.284).

An important issue is that of childcare. Single mothers in all occupations find it difficult to provide affordable and safe daycare, but nontraditional training and work schedules often present unique challenges. A JTPA service provider reported that the nontraditional fields are "set up for people who have a wife at home" (Pearce, 1993, p.34). Another service provided stated that unless a prospective student has relative that is going to be available on a 24-hour basis, that student won't be considered for nontraditional training. Pearce (1993) stated that many stories of failures of women entering nontraditional training revolved around "the collapse of a child care arrangement" (p.34).

Legislative History

Legislative reforms have evolved in an effort to overcome the sex segregation that historically has typified the American occupational structure. In 1984, significant legislation affecting vocational education overall was passed. The Carl Perkins Act expanded vocational education by increasing the number of special populations to be helped by federal dollars. States were required to spend 57% of their federal funds to serve special populations: single parents and homemakers were specifically named among these populations to be targeted (Weinrich, Weinrich & Galloway, 1988).

The Nontraditional Employment for Women Act (NEW) passed in 1991 amended the Job Training and Partnership Act. Its purpose was to encourage efforts by the government to provide a wider range of jobs under JTPA. The NEW Act asserted that "long-term economic security of women is served by increasing nontraditional employment opportunities for women" (deWit, 1994, p.1). Another federal law, School to Work was passed in 1993. This law gives planning grants to states to encourage businesses to coordinate opportunities for young women, and state plans must include strategies to ensure that the employment and training environments are free of sexual and racial harassment (Brustein & Mahler, 1994).

Research Regarding Occupational Decision-Making and Choice

Although employment equality issues began in earnest in the 1960s with the women's movement, specific studies surrounding nontraditional vocational-technical career choices for women are generally limited to about the last fifteen years. Studies regarding career choice and development fall into several general categories. Many researchers examine personality traits as predominant motivators, others examine socialization patterns and experiences as primary, and many acknowledge that perceived limitations surrounding opportunities often guide choices.

Malloy (1993) reported that the primary influence for most nontraditional students was parental. Cain (1992) found that most women selected nontraditional occupations based on the desire to do that type of occupational work, and perceived their families and teachers to be supportive of their efforts. These studies confirmed the work of Psathas (1969) who included the values orientation of the family unit as a factor affecting a woman's choices in life.

In the late 1950s, John Holland (1973) developed a method of classifying personalities into six different categories, and proposed that occupation titles could be appropriately assigned to each of the types. Holland's questions inquire about vocational interest constructs, and allow clients to self direct themselves to occupational options. Tokar and Swanson (1995) examined Holland's categories in terms of gender. Two dimensions that identified males within Holland's modes were openness and extroversion. Females in the study were identified by the strength of

openness, extroversion, and agreeableness factors. These findings were found to confirm previous research that demonstrated gender differences in terms of occupational choice.

A major focus of research related to women and personality variables is the concept of psychological masculinity and femininity (Betz & Fitzgerald, 1987). Beginning in the 1970s, as number of researchers suggested that masculine and feminine traits must be conceptualized as individual dimensions; therefore, an individual of either sex could possess relatively high levels of both masculine and feminine characteristics. Betz and Fitzgerald noted that women's career aspirations and talents are not reflected in their educational and occupational achievements as compared to males with comparable "masculine" abilities.

Hackett and Betz (1981), using the concept of career-related self-efficacy expectations, found that low career self-efficacy expectations kept women from considering traditionally male-dominated careers. According to these researchers, female socialization does not offer vicarious learning experiences or encouragement toward nontraditional pursuits and activities.

Stringer and Duncan (1986) found that women select nontraditional, blue collar jobs for many of the same personal reasons that men do: the need to feel competent, the need to make a contribution, and the need to feel necessary and productive. They found three common factors in these women: "...women who select these jobs have notably nontraditional attitudes about sex roles, have fewer opportunities than men to enter such jobs, and they receive less societal support and approval" (Stringer & Duncan, 1985, p.247).

A girl's occupational choice is often influenced by her mother's occupation. Daughters of employed mothers are more likely to have chosen to work outside of the home, and more often choose nontraditional occupations (Vondracek & Lerner, 1982). Fathers may also influence daughters' occupational choice. Bronfenbrennen (1986) found that fathers with high occupational status tended to promote nontraditional jobs for oldest daughters and in families with no sons.

The importance of mentors in a key element of nontraditional training (deWit, 1994). Pearce (1993) particularly advocated the need for mentors to guide women as they enter the nontraditional workplace.

RESEARCH METHODS, PROCEDURES AND RESULTS

The 125 subjects of this study were females enrolled in nontraditional and traditional postsecondary programs granting two-year degrees or certificates. Sixty eight respondents were enrolled in nontraditional programs; fifty seven were enrolled in traditional programs. Also surveyed were 26 staff members who were personally familiar with females enrolled in nontraditional programs. Nontraditional students and staff were from six schools located in Missouri, Illinois and Minnesota: traditional students were from two schools, one in Illinois and one in Missouri.

Survey items were developed to answer the research questions in descriptive terms, including and modifying some items from surveys used in research conducted by Read (1994), Malloy (1993) and Cain (1993). Other questions were developed as a result of the literature review. An initial version of the survey instrument was field tested at a St. Louis postsecondary technical school in September 1994, and later reviewed by 29 educators enrolled in graduate programs at Southern Illinois University in November 1995. Suggestions were gathered related to format, vocabulary and content. Further changes were made. An additional review was later

conducted by 17 educators at Southern Illinois University in November 1995. The survey was submitted and approved by the Southern Illinois University Human Subjects Committee.

Site visitations to postsecondary schools were made in January, February and March 1996. Surveys were completed in an anonymous manner after a face-to-face request by the researcher. Surveys were completed in classrooms, technical labs, counselors' offices and school cafeteria to accommodate students' schedules.

Fifteen nontraditional programs were represented. The highest percentages of enrollment were in Construction Technology (16%), Architectural Technology/CAD (12%), Refrigeration, Heating and Cooling /HVAC (12%), Welding (10%), Computer Technology (10%), Electricity/Electronics (10%), and Automotive Technology and Precision Machining at 6% each.

Traditional students were enrolled in occupation programs including administrative assistant, secretarial, paralegal and office systems specialist programs.

Age: Thirty-two percent of nontraditional occupation students were 18 to 22. The mean age of reentry nontraditional students was 30; the mean age of initial entry nontraditional students was 22. In contrast, 70% of the traditional students were 18 to 22. The mean age of reentry traditional students was 32; mean age of initial traditional students was 19.

Influences: The seven most influential factors, based on mean calculations of all students (both nontraditional and traditional occupations, younger and reentry) included type of work, high wages, fringe benefits, job security, experience in a class, desirable work location, and desirable work schedule. T test analyses comparing the mean scores of nontraditional and traditional occupational factors revealed no significant difference in the respondents' ratings of the most influential factors of "type of work I enjoy," and "high wages" in regard to their chosen occupations.

Funding: Students were also asked if their training was funded by an organization other than student loans. Eighteen (26%) of the nontraditional students recorded JTPA; JTPA was not recorded by any traditional students. Other funding sources for nontraditional sources included VA benefits/GI Bill (3), company retraining (1), and Voc Rehab (1). Funding sources for traditional students included employee tuition benefits (2), GI Bill (1), sports scholarship (1) and Civil Service Employee benefits (1).

Mentors: Students were asked whether they have a mentor. Eighteen percent of nontraditional students and 23% of traditional students reported having a mentor. Twelve nontraditional students identified their mentors as follows: instructor/teacher (4), grandfather/father (3), friend (3), and counselor (2). Traditional students' mentors included teachers (4), female relatives (5), counselor (1) and uncle (1). Male relatives listed as mentors had the same occupations as female respondents; these occupations included mechanics (2), machinist (1) and paralegal (1).

Nontraditional Advantages and Disadvantages: The most frequently recorded factors perceived to be advantages of nontraditional occupations were high wages, job security and type of work. Sixty six (97%) of the 68 nontraditional students perceived high wages as an advantage. Job security was perceived as an advantage by 55 students (81%) and 55 (78%) rated type of work as an advantage. Desirable work schedule and work location were considered advantages by 69% of the respondents. Sixty three percent considered fringe benefits an advantage. Availability of union membership was cited by 57% of nontraditional females as an advantage. About 49% of the respondents included help from a mentor and support from friends as advantages. Twenty two (32%) of the nontraditional respondents included parental approval as an advantage; five cited this factor as a disadvantage.

Twenty six (38%) perceived sexual harassment as a disadvantage of nontraditional work, and childcare was cited as a disadvantage by 10 (15%) of nontraditional respondents.

Traditional Advantages and Disadvantages: Type of work was considered an advantage by 54 (95%) of traditional students. Fringe benefits and parental approval were both considered advantages by about 80% of the traditional students. Forty four (77%) of the traditional respondents evaluated job security as an advantage. Thirty nine (68%) evaluated high wages as an advantage; eight (14%) considered wages a disadvantage.

About one fourth of traditional respondents considered location, scheduling and sexual harassment as disadvantages of their chosen occupations.

Occupational Barriers: Nontraditional students most often perceived sexual harassment (61%), lack of information about the occupation (54%), inadequate childcare (41%), and financial expense of training (32%) as barriers to entering nontraditional occupations. Approximately 70% of staff members at schools with nontraditional programs perceived sexual harassment, lack of support from family, lack of information about nontraditional occupations and inadequate preparation for a technical course of study as barriers. Staff also perceived lack of support from instructors 950%) and inadequate childcare (46%) as barriers.

Fifty four percent of traditional students perceived sexual harassment as a barrier; 28% perceived the financial expense of training as a barrier.

IMPLICATIONS AND RECOMMENDATIONS

Predictions for the year 200 and beyond indicate that traditional employment patterns will generally prevail, with women concentrated in the traditionally female occupations that pay less than men's jobs (Johnston and Packer, 1987). Such predictions offer challenges to educators, counselors, lawmakers and women who strongly believe that female movement into nontraditional vocational-technical occupations can bring many advantages. The differences between traditional and nontraditional students' responses imply that nontraditional wage advantages often advocated by employment training policy makers are not so clearly perceived by students involved in occupation decision-making.

Many studies indicate that women choosing nontraditional jobs are unique in personality and willingness to pursue careers sometimes not considered appropriate for females. Because of the wage gap between traditionally men's and women's work, it is appropriate for educators, parents and counselors to provide support to all females who might benefit from nontraditional work. However, this enthusiasm for higher paying jobs must be balanced with the realization that type of work is an important factor to occupational choice. Since females often have little access to nontraditional occupations and work, it is imperative for educators and employers to provide exposure to these jobs and to present both advantages and disadvantages of nontraditional work to prospective students. Some staff members' responses may indicate outdated views, especially in regard to occupational barriers.

The following recommendations are made for the purpose of guiding counselors, educators and women themselves in the occupational choice process as it applies to nontraditional occupations. 1. Personality, aptitude and interest tests should be provided to females considering nontraditional work. 2. Realistic site visitations and interning opportunities should be provided for females considering nontraditional work. 3. Mentoring partnerships with women working in nontraditional occupations should be established. 4. Seminars and training about sexual harassment should be conducted. Practical information about how to handle tough

situations should be emphasized, not just the legal aspects of the issue. 5. Information about nontraditional courses of study should be distributed to high school counselors as well as to service providers in training organizations such as JTPA. 6. Females should be actively recruited for high school tech prep programs, allowing them to experience technical courses and activities prior to postsecondary programs. 7. Information and assistance in childcare should be provided by schools and employers for those nontraditional students requesting help.

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**Work Values and Leadership Styles of Manufacturing Employees
in the U.S. and Germany:
A Cross-Cultural Comparison**

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Abstract

This survey-based study examined within- and between-country differences in work-related values and leadership styles of U.S. and German telecommunication employee. The results showed country- and job level effects for cultural values and leadership styles, but only weak intercorrelation between the two constructs. The study points to patterns of work-related values different from those predicted by earlier research and identifies developmental needs in leadership among first line supervisors

Despite the rapidly increasing globalization of business and industry, there is a dearth of cross-national and cross-cultural comparative social science research to answer the questions faced by organizations operating in increasingly complex and fast-changing international and multi-cultural environments and to provide guidance for practice. In the field of International Human Resource Development (IHRD) this lack is especially keenly felt (e.g.: Hansen & Brooks, 1994; McLean, 1991; Peterson, 1997), but also in the related fields of Human Resource Management (e.g.: Brewster, Tregaskis, Hegewich, & Mayne, 1996) and Organizational Behavior (e.g.: Lytle, Brett, Barsness, Tinsely, & Janssens, 1995). Among the reasons for to this paucity are the lack of global constructs and theories, the complexity of measuring country-level effects, and difficulties of research design.

This comparative, cross-national, and cross-cultural study expands the body of knowledge of IHRD by testing a series of hypotheses related to leadership and work-related values of U.S. and German telecommunication employees of a global organization. The choice of these two countries was dictated by the strong economic, historical, political, and cultural ties between these two nations and the researcher's familiarity with and interest in both nations. Moreover, there has been a great degree of cross-fertilization of ideas related to each other's HRD-related practices in areas ranging from general and higher education, to apprenticeship training, labor-management relations, and work-related policies and practices.

The study focused on three distinct research questions: (1) the degree of variance of cultural, work-related norms and values both within and between the two countries; (2) the level of variance in leadership styles and behaviors within and between the two countries; and (3) the

intercorrelation of work-related values and leadership styles. The research design allowed for three levels of analysis for each problem: (1) country-level comparisons of culture and leadership, comparing the two U.S. sites and the German site; (2) within-country comparisons of the two US sites comparing the sites located in the Mid-Western and the Eastern parts of the country; and (3) within-site comparisons of three levels of job categories at each of the three sites. The results provided a comprehensive set of answers related to the differences in work-related values and leadership styles and their intercorrelation by nation, by site within the U.S., and by job category within each site.

Summary of Previous Research

The concept of culture is central to the study of groups and nations and has been used in IHRD and international management to measure country- and group-level effects that can discriminate between countries and groups and thus help explain variance in the behavior or organizations and people. Culture has been conceptualized as a complex web of norms, values, assumptions, attitudes, and beliefs that are characteristic of a particular group and are reinforced and perpetuated through socialization, training, rewards, and sanctions (Lytle et al., 1995). Culture constitutes the successful attempt to adapt to the external environment, it presents the group's strategy for survival (Triandis, 1994), and has been described as the "software of the mind" (Hofstede, 1991, p. 3). Researchers have described a wide variety of categories of cultural dimensions (see Lytle et al., 1995), and it is generally accepted that individuals can belong to any number of social groups each with its own set of norms and values (Kostova, 1997).

Among the most popular frameworks for studying international culture has been that of Geert Hofstede who published a ground-breaking study of some 116,000 IBM employees in 40 countries surveyed in 1968 and 1972 (Hofstede, 1980) and used factor-analytic techniques to arrive at four dimensions of culture as related to work organizations: power distance, individualism, masculinity, and uncertainty avoidance. Hofstede later (Hofstede & Bond, 1989) added a fifth dimension, long-term orientation, which is a part of Confucian Dynamism. The framework has been applied and replicated over 60 times and the country differences predicted by Hofstede have been by and large confirmed (Søndergaard, 1994).

The scholarly and practitioner literatures, by and large, have treated the country scores published by Hofstede (1980) from research with one company in the late 1960s and early 1970s as valid today and as generalizable to the entire U.S. and Germany, despite the fact that most replication studies were conducted in other countries. Given the single data point presented by Hofstede's work and the dramatic political changes in both countries over the past 30 years, a replication of the original research, as conducted in this study, was warranted.

The popularity of Hofstede's work has further led to the oversight of possible within-country differences in work-related values, for instance by region or by position within an organization. While Hofstede (1980) acknowledged the possibility that the scores of the original dimensions of culture were artifacts of the sample, little research has been conducted to test the level of homogeneity of work-related values in other samples. This study accomplished this task by comparing two U.S. sites to one another and each of the three sites by job category and thus presents an extension of the original work.

Although several hundred definitions of leadership exist (Stogdill 1990), more recently the focus of research has shifted to a new class of outstanding leadership theories (House &

Podsakoff, 1994) that takes as its core idea the concept of charisma, defined early in this century by German sociologist Weber (1924/1947) as the leader's authority based on "devotion...[exemplary character [and] of the normative patterns or order revealed by him (sic)" (p. 328). Based on this notion, Bass (1985) and colleagues developed a theory of transformational leadership, distinguishing between transformational leadership (and its components charisma, intellectual stimulation, individual consideration, and inspirational motivation); transactional leadership (contingent reward and management-by-exception); and laissez-faire (or non-) leadership. Transformational leadership is said to exert an augmentation effect, that is to add to the levels of productivity, satisfaction, and effectiveness associated with transformational leadership alone (Avolio, Bass, and Jung, 1995). The factor structure of the theory has been confirmed in many replications and the instrument refined and translated into a number of languages.

None of the replications, however, addressed possible differences in leadership style by site, by population within site, or by country. Focusing on single-country, single-site research settings, the theory has not been tested in light of possible differences in leadership styles by level within the organization or by region, and scant attention has been paid to differences in transformational leadership style by country. This study accomplished this by testing for differences in leadership styles within and between sites and countries.

A third purpose for the study was to empirically test whether specific work-related values were related to specific leadership styles. While the topic of culture and leadership has received much theoretical attention in the literature (e.g.: Hofstede, 1980; Schein, 1985; Triandis, 1994), little empirical research exists relating specific cultural values to specific styles of transformational or transactional leadership.

Research Setting, Design, and Methodology

The study was conducted using a causal-comparative, ex-post-facto, one-shot survey design. The population consisted of the 5,400 employees at three manufacturing sites of a Fortune 500 multi-national telecommunication organization headquartered in the U.S. The three sites were located in Ohio (OH), New Jersey (NJ), and Nürnberg/Germany (NU) and reported to the same U.S.- based Vice President of Operations. All three sites were involved in manufacturing telecommunication transmission equipment, had like technologies and work processes, and identical work policies and procedures. The sites differed in size and age, the OH site was the largest and oldest, the NJ site the smallest and youngest. In consultation with representatives at the three sites, a survey was administered to a stratified, non-proportional, random sample of the population, using Hofstede's 1994 version of the Value Survey Module, VSM 94 (Hofstede, n.d.), Bass and Avolio's Multifactor Leadership Questionnaire, MLQ5x (Avolio, Bass, and Jung, 1995), and a series of standard demographic questions. Both the VSM 94 and the MLQ5x have been used extensively in the past and have known psychometric properties; the instruments were obtained from the authors in English and German and given to the participants in their native language. The survey was administered to 3,540 employees (66% of population) and yielded an overall response rate of 53% (Table 1).

Table 1

Sample Sizes, Responses and Response Rates by Job Category and Location

Site/Job Category	Ohio		New Jersey		Nürnberg		Total	
	Initial Sampl e	Res- ponse	Initial Sampl e	Res- ponse	Initial Sampl e	Res- ponse	Initial Sampl e	Res- ponse
Production	939	196	255	122	745	528	1,939	846
Employees		(21%)		(48%)		(71%)		(44%)
Engineers	305	131	134	34	800	468	1,239	633
		(43%)		(25%)		(59%)		(51%)
Managers	186	105	23	6	150	53	359	164
		(56%)		(26%)		(35%)		(46%)
Invalid/No		6		25		198		229
Answers		(<1%)		(6%)		(12%)		(6%)
Total	1,430	438	412	187	1,695	1247	3,537	1872
		(31%)		(45%)		(74%)		(53%)

Note: Percentages based on Initial Sample Size Row Totals

The error limit (Wunsch, 1986) associated with this response was less than plus/minus 3 percent overall and ranged from plus/minus 2% to plus/minus 10% for specific subpopulations. Chi-square tests of demographic information of respondents with information obtained from the

sites' personnel information system showed that survey respondents were representative of the plant population with the exception of the overrepresentation of women in the sample. In addition to the survey, a series of open-ended interviews were conducted at each site to obtain contextual information. The data were analyzed and feedback sessions conducted at each of the three sites with managers, engineers, and production employees. The feedback sessions resulted in action plans at each site to improve leadership styles and collaboration within and among the three sites.

Results

Demographic information collected from the 1,872 survey respondents revealed differences by site and by job category for gender, age, level of education, and union membership (Table 2). With the exception of production employees at the Ohio plant, the majority of employees in all job categories were male; employees at the Ohio plant were older and had lower levels of education for production and engineering positions than at the other two plants. The New Jersey and Nürnberg plants were similar in their demographic profile, except for the fact that the German production employees were unionized.

The scores for leadership styles and work-related values were calculated based on the formulae provided by the test authors; test statistics for the leadership scales revealed ranges of the mean scores and standard deviations similar to those attained in previous studies, with measures of internal consistency (Chronbach's alpha) ranging from $\alpha = .68$ to $\alpha = .83$, meeting the generally expected level of $\alpha = .7$. Means and standard deviations for the culture dimensions varied from previously published studies; internal reliability was $\alpha = .83$ for the entire instrument, but below the .70 mark for Power Distance and Uncertainty Avoidance. These low reliabilities pose questions about the internal reliability and factor structure of these two dimensions and pose a limitation to this study. As predicted by the theory, the four transformational leadership scales were highly and positively intercorrelated, while transactional and the non-leadership factors were negatively correlated with transformation leadership. There were only marginal ($r < .2$) correlations between the cultural dimensions, suggesting the independence of the dimensions from one another.

Table 3

Chronbach Alphas and Pearson's Product-Moment Correlations ($p < .05$ only) of Leadership and Culture Dimensions ($N=1,872$)

Dimen	TFL	CHA	MOT	STM	CON	TAL	REW	MBE	LFL	PDI	IND	MAS	UAI	LTO
TFL	.78													
CHA	.96	.76												
MOT	.81	.89	.83											
STM	.85	.72	.55	.78										
CON	.86	.73	.55	.74	.77									
TAL	.32	.31	.23	.28	.28	.74								
REW	.84	.78	.62	.73	.77	.47	.79							
MBE	-.32	-.29	-.25	-.28	-.31	.71	-.29	.68						
LFL	-.60	-.56	-.56	-.54	-.55		-.58	.53	.76					
PDI	.20	.17	.12	-.19	.24		.21	-.17	-.22	.56				
IND			.07							-.15	.78			
MAS							.07			-.14		.70		
UAI										.18		-.07	.52	
LTO										-.07		.09	-.14	.86

Key: Diagonals: Chronbach's alpha

Leadership Scales: TFL = Transformational; CHA = Charisma; MOT = Inspir. Motivation; STM = Intell. Stimulation;

CON = Indiv. Consideration; TAL = Transactional; REW = Contingent Reward; MBE = Mgmt-by-Exception; LFL = Laissez-faire

Culture Scales: PDI = Power Distance; IND = Individualism; MAS = Masculinity; UAI = Uncertainty Avoidance; LTO = Long-term Orient.

Differences in Cultural Values and Leadership Styles

Because of main effects of demographic variables on leadership and culture, they were statistically controlled for in the Analyses of Covariance (ANCOVA) models used to test for differences within, among, and between sites. Each ANCOVA was conducted three times: (1) by merging the two U.S. sites and comparing them to the German site to test for country effects; (2) by comparing the New Jersey and Ohio sites to test for regional, within-country effects; and (3) for each of the three sites by job category to test for job category effects. Follow-up pairwise tests were conducted using the Bonferroni procedure.

The study found country-level effects for three of the five culture dimensions: Power Distance (Germany higher), Individualism (U.S. higher), and Masculinity (U.S. higher). There were no differences in the levels of Uncertainty Avoidance or Long-term Orientation (Table 4). These findings depart from the results reported in Hofstede's (1980) original research where the U.S. sample had scored higher in Power Distance and where the differences in the two countries' scores for Masculinity and Uncertainty Avoidance had been much greater. The country-level analyses also showed that production employees and engineers in the two countries differed, while U.S. and German managers' scores did not.

Table 4

Analysis of Covariance for Culture Dimensions (N=1,892); Hofstede's (1980) Scores in (Brackets)

Dimension	<u>M</u>		<u>F</u>
	U.S.	Germany	
Power Distance	29.05 (40)	35.21 (35)	13.10***
Individualism	79.07 (91)	53.18 (67)	165.2***
Masculinity	10.51 (62)	-19.96 (66)	52.05***
Uncertainty Avoidance	102.55 (46)	105.06 (65)	2.15 ns
Long-term Orientation	43.00 (29)	43.84 (31)	.07 ns

Levels of Significance: *** .001; ** .01; * .05

When comparing culture and leadership scores of the two U.S. sites, testing hypotheses related to regional (within the U.S.) differences, the results showed differences in Power Distance (Ohio site higher) for production employees and engineers. None of the other culture dimension scores differed in the ANCOVA model.

The study also tested for within-site differences in work-related values. Here, the results differed by site: At the New Jersey plant, no differences were found for any of the five culture dimensions among managers, engineers, and production employees. At the Ohio site, managers scored lower on Power Distance and Uncertainty Avoidance than the rest of the organization, while production employees scored the lowest on individualism (Table 5).

Table 5

Comparison of Within-Site Difference in Culture Dimensions: Ohio (N=438)

Dimen- sion	<u>M</u>			<u>F</u>	Pairwise
	Product.	Engineers	Managers		Compara- sons
PDI	43.73	36.40	19.55	5.86**	E>M;P>M
IND	66.14	88.35	93.17	67.07***	E>P;M>P
MAS	3.41	10.87	1.29	.47 ns	-
UAI	118.94	102.32	78.71	8.67***	E>M;P>M
LTO	43.48	46.68	47.10	.06 ns	-

PDI: Power Distance, IND: Individualism; MAS: Masculinity; UAI: Uncertainty Avoidance; LTO: Long-term Orientation; Significance Levels: *** .001; ** .01; * .05
P: Production Employees, E: Engineers, M: Managers

At the German site (Table 6), managers also scored lower on the Uncertainty Avoidance scale, and there were differences in the level of Individualism (production employees lower than engineers), Masculinity (production employees higher than engineers), and Long-term Orientation (managers higher than production staff).

Table 6
Comparisons of Within-Site Culture Dimensions by Job Category: Nürnberg (N=1,247)

Dimen- sion	<u>M</u>			<u>F</u>	Pairwise
	Product.	Engineers	Managers		Compara- sons
PDI	34.49	33.53	36.37	.04 ns	—
IND	46.44	61.94	56.15	4.68***	E>P
MAS	-10.61	-34.20	-14.71	6.48**	P>E
UAI	100.68	108.45	76.40	8.51***	P>M; E>M
LTO	40.68	45.80	60.67	4.04**	M>P

PDI: Power Distance, IND: Individualism; MAS: Masculinity; UAI: Uncertainty Avoidance; LTO: Long-term Orientation; Significance Levels: *** .001; ** .01; * .05
P: Production Employees, E: Engineers, M: Managers

Country-level effects were also found for the transformational leadership dimensions of Charisma and Inspirational Motivation (U.S. higher), as well as for Intellectual Stimulation (Germany higher). These differences were found among production employees and engineers, but not among managers.

When comparing leadership styles of the two U.S. sites, the only differences were between NJ engineers who scored higher on Management-by-Exception than their counterparts at the OH site, and NJ managers who scored higher on Management-by-Exception and Laissez-Faire Leadership than their OH peers.

With respect to leadership, the NJ site yielded a homogeneous picture and no differences were found among the three employee groups. At the Ohio (Table 7) and the German (Table 8) sites, managers scored higher on transformational leadership styles than did engineers and production employees.

Table 7

Comparison of Within-Site Differences in Leadership: Ohio (N=432)

	<u>M</u>			<u>F</u>	Pairwise
	Product.	Engineer	Managers		Compari- sons
TFL	2.22	2.37	2.44	4.15*	M>P
CHA	2.31	2.55	2.72	3.25*	M>P
MOT	2.54	2.72	2.79	.81 ns	
STM	2.05	2.18	2.62	8.36***	M>P;M>E
CONS	1.99	2.17	2.44	3.83*	M>P
TAL	1.79	1.63	1.67	1.08 ns	
REW	2.22	2.24	2.44	1.32 ns	
MBE	1.57	1.32	1.30	2.67 ns	
LFL	1.06	.87	.76	2.35 ns	

Significance Levels: *** .001; ** .01; * .05

TFL: Transformational Leadership; CHA: Charisma; MOT: Inspirational Motivation

STM: Intellectual Stimulation; CONS: Individual Consideration; TAL: Transactional Leadership; REW: Contingent Reward; MBE: Management-by-Exception; LFL: Laissez-faire

Leadership; P: Production Employees, E: Engineers, M: Managers.

Table 8

Comparison of Within-Site Differences in Leadership: Nürnberg (N=1,247)

	<u>M</u>			<u>F</u>	Pairwise
	Product.	Engineers	Managers		Compariso
	Employ.				ns
TFL	2.31	2.14	2.39	3.32*	M>E
CHA	2.31	2.05	2.40	4.61*	P>E; M>E
MOT	2.40	2.11	2.42	5.63**	P>E; M>E
STM	2.40	2.26	2.43	.99 ns	—
CONS	2.21	2.11	2.26	.89 ns	—
TAL	1.73	1.64	1.65	.40 ns	—
REW	2.32	2.07	2.27	1.15 ns	—
MBE	1.53	1.48	1.39	1.32 ns	—
LFL	.97	1.05	1.01	.06 ns	

Significance Levels: *** .001; ** .01; * .05

TFL: Transformational Leadership; CHA: Charisma; MOT: Inspirational Motivation

STM: Intellectual Stimulation; CONS: Individual Consideration; TAL: Transactional Leadership; REW: Contingent Reward; MBE: Management-by-Exception; LFL: Laissez-faire Leadership; P: Production Employees, E: Engineers, M: Managers.

Correlational Analyses of Culture and Leadership

Partial correlation analyses, controlling for demographic variables, were conducted to measure the relationship between cultural dimensions and leadership. As before, these analyses were conducted at the country, regional, and site levels. Overall, the analyses failed to show significant relationships between the two constructs. Where significant, partial correlation coefficients rarely exceeded $r = .2$, suggesting spurious relationships and artifacts of the sample size. Low- to medium correlations were, however, found for the U.S. engineers (both U.S. sites combined) where Power Distance and transformational leadership dimensions were positively correlated (r 's ranging from .31 to .41). Correlations of similar size were also found at the German plant managers for the relationships between Individualism and Transactional Reward and Intellectual Stimulation and Long-term Orientation.

These results show a generally limited intercorrelation between culture and leadership, except for U.S. engineers and German managers.

Implications for Practice and Research

This study has implications for practice at two levels. For the organization, it yielded a fine-grained analysis of work-related values and leadership styles. As the three plants are moving toward closer cooperation with one another, these measurements of culture and leadership gave voice to areas of similarities and differences, resulted in action planning to reduce the high levels of uncertainty avoidance and to raise the use of transformational styles of leadership, and set a baseline for measuring progress over time.

Although the study did not generalize beyond the walls of the three sites, it has implications for HRD professionals working within the U.S. and internationally. First, as this study shows, work-related values differ by country, by region, and by level within the organization. Further, these differences change over time. The study of culture is in its infancy; assuming that Hofstede's results, or those of any other cross-cultural study (including this one) can apply to an untested population appears, therefore, as a dangerous and unwarranted overgeneralization. In working with different groups, whether nationally or internationally, where work related values are of importance, HRD professionals are well advised to conduct measurements like the ones used in this study in order to tailor the intervention to their specific cultures. A similar argument appears warranted for expatriate training: given the amount of within-country variance of culture, an assessment of the specific work-related values of the host culture will provide the most valid and reliable information.

This study found a predominance of transactional leadership styles among production employees. Given the clear link between transformational leadership and increased performance and quality of work life, this finding, if borne out in other settings, suggests a developmental agenda for first-line supervisors, team leaders, and those in charge of production employees who, historically, have received the least amount of formal training and development.

The study also has clear implications for theory and points to future research needs. In this study, work-related values were neither uniformly distributed nor shared within the two countries, raising questions about the utility of the construct of national culture in multi-cultural societies like the U.S. and Germany. Further, one of Hofstede's measures returned unacceptably low internal reliability measures, calling into questions the validity of the underlying construct.

Related to leadership theory, the study suggests the existence of heterogeneity of leadership styles within the same organization, with clearly lower levels of transformational

styles among German employees and among U.S. and German production workers. Finally, the moderate-size correlation between transformational leadership and high power distance among German engineers suggests a possible limitation to the extent to which transformational leadership can be implemented in that group. Despite the general trend toward more participatory and egalitarian working relationships, leadership through a strong vision and identification with the leaders might not be accepted in all situations.

The agenda for future research suggested by this study focuses on the need to more clearly define the culture construct and develop reliable and valid measures, to better understand the limitation that work-related values might place on transformational leadership, and to investigate the reasons for the low levels of transformational leadership among production employees.

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**TECHNICAL AND OCCUPATIONAL EDUCATION INSTRUCTORS'
PERCEIVED USE OF STUDENT ASSESSMENT INFORMATION
IN MAKING EDUCATIONAL DECISIONS**

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Abstract

This descriptive study was designed to describe instructors' use of assessment methods in post-secondary technical and occupational classrooms and laboratories. Data were collected from a random sample of all post-secondary technical and occupational instructors within the State of Ohio. Results indicated instructors tend to use information from paper and pencil test the most in making instructional decisions. Instructors used information from performance assessments the next most often, which was followed by informal observations. Post-secondary instructors tended to rarely use information from standardized tests, portfolios, and essay methods. Instructors neither agreed or disagreed that they faced potential constraints while conducting assessment activities. More than four-fifths of the instructors reported a positive attitude toward assessment and more than one-half considered themselves to be very competent in assessment. It was found that instructors within the program area of marketing accounted for more than six percent of the variation of using portfolios in making instructional decisions. Two program areas (marketing and business occupations) each accounted for three percent of the variation in the use of essay methods in making instructional decisions. Instructors' attitudes toward assessment was found to explain 11% of the variation in instructors use of performance assessment and four percent of the variation in instructors' use of portfolios. The perceived competency level of instructors in assessment contributed about three percent of the variation in instructors' use of portfolios.

Introduction

Since the 1970s the public, elected officials, state agencies, and the media have become more interested in education. This interest has been due in part to the achievement of our students, which does not compare well with counterparts in other countries. Hudgins (1993) stated that although costs have been rising for higher education, student achievement has flattened out and sometimes even declined. Many individuals in post-secondary education paid little attention to the debate caused by this report and assumed that this was a problem of K-12 education. The public, however, did not see the separation between post-secondary and K-12 education and looked at this as one educational system (Hudgins, 1993). Because of this lack of separation, there has been an increased interest and sometimes demand for educational institutions to show greater accountability to suggest how much and what students are learning at all levels of education. Post-secondary institutions have not shown to legislators, or to the public, a strong and obvious correlation between investment and return (Hudgins).

Colleges and universities know how smart their students were when these students arrived on their campuses, but they do not know very much about what they have learned while they were there (Bok, 1992). Because there has been little investigation on how well post-secondary instructors teach or how much their students learn, deciding the effectiveness of their programs has been difficult. This presents a problem when trying to convince the public that education is a top priority of these institutions. Since this focus has not shifted, colleges and universities have continued to be vulnerable to the attacks on their curricula, faculty, tuition, and other issues (Bok, 1992).

Statement of the Problem

How technical and occupational instructors use assessment information in the classroom and laboratory and whether its use is effective, can play a major role in enhancing and documenting both instruction and learning. The literature revealed very little about assessment practices and their use by post-secondary instructors. Recent research conducted on the quality and effectiveness of general-education instructor training in measurement and assessment has implied that these individuals may not be acquiring the appropriate skills necessary to use assessment skills effectively. If this is true for general education instructors, what are the assessment skills needed by technical and occupational instructors? Information on the assessment skills needed and the use of assessment information by technical and occupational education instructors is not available.

Purpose and Objectives of the Study

The purpose of this study was to describe assessment activities, problems, attitudes, and perceptions of Ohio post-secondary technical and occupational education instructors. The specific objectives of this study were to:

1. Describe Ohio post-secondary technical and occupational education instructors in terms of the following demographic characteristics: age, sex, related work experience, teaching experience, program area taught, and educational level.
2. Describe Ohio post-secondary technical and occupational education instructors' perceptions of the use of student assessment information in making instructional decisions.
3. Describe how Ohio post-secondary technical and occupational education instructors face potential constraints while conducting assessment activities.
4. Describe Ohio post-secondary technical and occupational education instructors' attitudes toward the assessment process.
5. Describe Ohio post-secondary technical and occupational education instructors' perceptions of their level of competence in the assessment process.
6. Examine the relationships between Ohio post-secondary technical and occupational education instructors' use of assessment information and:
 - a. selected demographic characteristics,
 - b. perceived level of competence in the assessment process,
 - c. their attitudes toward assessment, and
 - d. constraints to the assessment processes.
7. Determine the proportion of variance in Ohio post-secondary technical and occupational education instructors' perceived use of assessment information in instructional decision-making that can be explained by the independent variables of attitudes toward assessment, competence in the assessment process, constraints to the assessment process, and selected demographic characteristics.

METHODOLOGY

The methodology used to conduct the research is described in this section. The methodology is organized and presented in the following sections: (a) research design, (b) population and sampling, (c) instrumentation, (d) data collection, and (e) data analysis.

Research Design

This descriptive-correlational study was designed to explore and describe the assessment practices of Ohio post-secondary technical and occupational instructors. The nature and strength of relationships between assessment use and instructor attitudes, instructor competence in assessment, constraints to assessment, and instructor characteristics were examined. The dependent variable in this study was instructor use of student assessment information in making instructional decisions. Independent variables included instructor attitudes toward assessment, instructors' competence in assessment, and potential constraints faced by instructors while conducting assessment activities.

Population and Sampling

The target population for this study was all full-time post-secondary technical instructors in the State of Ohio during the spring of 1996. A random sample of 318 individuals was drawn from the population as recommended by Krejcie and Morgan (1970) with a 95% confidence level of obtaining a representative sample of the population.

Instrumentation

The five-part survey used for this research was adapted from a survey used in a similar research study (Kershaw, 1993). The dependent variable, instructor use of assessment information, was measured in Part I of the instrument. Instructors were asked to indicate the extent to which they use information from six types of assessment methods in addressing nine different instructional decisions. The six types of assessment methods used in the study included: objective paper and pencil methods, standardized test scores, performance assessments, informal observations, portfolios, and essay methods. The participants in this study were asked to indicate the extent to which they use results from each of the six assessment methods in making nine different types of instructional decisions. The instructional decisions addressed were: planning for instruction, diagnosing student weaknesses, monitoring student progress toward course objectives, motivating students to learn, evaluating the effectiveness of instruction, evaluating the instructional materials used, encouraging students to assess their own work, assigning grades, and grouping students for instructional activities. A five-point Likert-type scale ranging from "never use" to "always use" was used.

Part II of the questionnaire was designed for measuring the first independent variable, competence in assessment. The respondents were asked to indicate the perceived level of their competence in the assessment process. The competency statements used for this section were based upon "Standards for Teacher Competence in Educational Assessment of Students" (American Federation of Teachers, National Council on Measurement in Education, & National Education Association, 1990). A five-point Likert-type scale was used which ranged from "not competent" to "extremely competent."

Instructors' attitudes toward assessment were measured in Part III of the instrument using a semantic differential scale. This scale consisted of eight bi-polar adjectives that represent the concept of assessment. A seven-point scale was used for each pair of adjectives. Respondents were asked to place a check mark between the adjectives at the point that best indicated how they would describe their attitude toward the overall assessment process.

Part IV of the instrument was designed to measure the perceived constraints that instructors may face during their assessment activities. A five-point Likert-type scale was used that ranged from "strongly disagree" to "strongly agree". Participants were asked to indicate their level of agreement or disagreement with nine constraint statements.

The personal characteristics of each instructor were measured in Part V of the questionnaire. Respondents were asked to provide personal information regarding the characteristics of sex, teaching experience, related work experience, teaching area, level of education and present age.

A panel of experts was used to establish content and face validity for the survey instrument. The panel of experts was used to ensure that the instrument had clearly defined statements and questions, made suggested changes to statements and questions, offered suggestions for the addition or deletion of statements and questions, and made comments on the format and general appearance of the survey instrument.

After the instrument was revised, it was pilot tested for reliability using a group of respondents from a community college outside the State of Ohio. A test-retest method was also used to test the reliability of the instrument over a period of time. The time interval between the test and retest was two weeks. The results from test #1 and test #2 were compared for percent agreement with values that ranged from .85 to .92 for each item. Measures of internal consistency were calculated from the data obtained from the first test of the test/retest method. Cronbach's Alpha ranged from .77 to .94 for each of the six sections of Part I, .85 for the 21 summed items in Part II, .81 for the semantic differential in Part III, and .54 for the sum of the nine items in Part IV.

Data Collection

The data for this study were collected by a mail questionnaire. This data collection consisted of an initial mailing of questionnaires being sent out and approximately one week later a post card reminder was sent to all participants in the study. This post card reminded participants of the importance of the study and the importance of each response. It further thanked the respondents and asked the non-respondents to take the time to complete and return the questionnaire. Approximately two weeks after the first mailing a second packet was mailed to all non-respondents. The final correspondence with the participants included a second post card reminder sent to all non-respondents approximately one week after the second mailing was sent. Questionnaires were received from 170 instructors that represented an overall response rate of 53%. Of the 170 surveys returned, 93% (158) were useable. This represented an overall useable response rate of slightly less than 50%.

A 10% random sample of non-respondents was selected and contacted by telephone. However, to obtain 10% responses, it was necessary to contact more than 20% of the non-respondents. Differences between non-respondents and respondents on each part of the questionnaire were compared using a t-test. The significance level of alpha for this test was set at .05. No significant differences were found between the two groups for each part of the questionnaire. However, an over sampling of the non-respondents was conducted to obtain this information, therefore the results of this study cannot be generalized beyond the respondents.

Data Analysis

Descriptive statistics provided measures of central tendency and variability for organizing, summarizing and analyzing differences and likenesses between groups. Pearson's r coefficient, point bi-serial correlation coefficients, and Cramer's V were used to summarize the magnitude and direction of the relationship between variables. The Davis (1971) conventions were used to describe the measures of association (Table 1).

Table 1
Conventions Used to Describe Measures of Association

Coefficient	Description
.70 or higher	Very Strong Association
.50 to .69	Substantial Association
.30 to .49	Moderate Association
.10 to .29	Low Association
.01 to .09	Negligible Association

Source: Davis, (1971)

Semi-partial multiple regression was used to calculate the unique relationships between independent variable sets and the dependent variable, use of assessment information in making instructional decisions. The stepwise entry method of independent variables into the multiple regression models was used based on the exploratory nature of the study, the fact that interval, ordinal, and nominal variables were investigated, and the lack of theory to guide the order in which variables were entered into the equation.

FINDINGS

This section reports findings related to the following: (a) characteristics of the respondents, (b) instructors' use of assessment information, (c) instructors' perceived competence in assessment, (d) instructors' attitudes toward assessment, (e) instructor perceived constraints to assessment, (f) relationships between dependent and independent variables, and (g) multiple regression models.

Demographic and Background Characteristics of the Sample

This study examined six demographic and background characteristics for the sample that included age, sex, years of teaching experience, years of work experience, program area, and level of education. From the variable of age it was found that 44.2% of the sample was in an age group that ranged from 40-49 years (Table 2). Slightly more than 27% of the respondents were between 50-59, and 16.2% were between 30-39 years of age. Instructors ranged in age from 25 to 67 with a mean age of 47.03. Gender data revealed that females comprised 57% and males 43% of the sample (Table 2).

Table 2

Age and Sex of Instructors (n=158)

<u>Age</u>	Charactersitics	f	%
	Under 30	25	16.2
	30 - 39	25	16.2
	40 - 49	68	44.2
	50 - 59	42	27.3
	60 and over	16	10.4
	Total	154 ^a	100.0
<u>Sex</u>			
	Female	90	57.0
	Male	68	43.0
	Total	158	100.0

Mean = 47.03
SD = 9.4

^aInformation was missing for four respondents on age.

Years of teaching experience ranged from one to 38 years with the mean being 15 years of experience (Table 3). The largest group of instructors (23.1%) taught for 16-20 years while the smallest group (2.6%) taught for more than 31 years. In terms of related work experience, 12.3% had 16-20 years of related work experience before or concurrent to teaching, 18.8% had 11-15 years, and 24.7% had 6-10 years (Table 3). Slightly more than 34% had 0-5 years of related work experience.

Table 3

Instructors' Years of Related Work and Teaching Experience (n = 158)

Characteristics	f	%	
<u>Years of Related Work Experience</u>			
0-5	53	34.4	Mean = 10.96 SD = 7.92
6-10	38	24.7	
11-15	29	18.8	
16-20	19	12.3	
21-25	5	3.3	
26-30	6	3.9	
31-35	4	2.6	
Total	154 ^a	100.0	
<u>Years of Teaching Experience</u>			
1-5	20	12.8	Mean = 15.49 SD = 8.34
6-10	32	20.5	
11-15	27	17.3	
16-20	36	23.1	
21-25	19	12.2	
26-30	18	11.5	
31 or more	4	2.6	
Total	156 ^b	100.0	

^aInformation was not available from four respondents on years of related work experience. ^bInformation was not available from two respondents on years of teaching experience.

Health occupations comprised the largest group in the study with 38.5% of all instructors (Table 4). Business occupations also consisted of a large portion of instructors within the study (26.3%), and was followed by engineering at 12.8%. Agriculture, family and consumer sciences and human services contributed less than two percent each. Four-fifths of the respondents had completed a graduate degree (80%) (Table 5). Slightly less than 10% had completed some graduate work, and less than six percent had a bachelors degree.

Table 4

Program Area of Instructors (n=158)

Program Area	f	%
Agriculture	3	1.9
Business Occupations	41	26.3
Marketing	5	3.2
Family and Consumer Sciences	2	1.3
Trade and Industrial	10	6.4
Health Occupations	60	38.5
Engineering	20	12.8
Human Services	2	1.3
Other	13	8.3
Total	156 ^a	100.0

^aInformation was not available from two respondents.

Table 5

Instructors Level of Education (n=158)

Level of Education	f	%
Associates Degree	5	3.2
Bachelors Degree	9	5.8
Some Graduate Work	15	9.7
Masters Degree	106	68.4
Doctorate	18	11.6
Other	2	1.3
Total	155 ^a	100.0

^aInformation was not available from three respondents.

Use of Assessment Information

Table 6 displays the results of instructors' use of assessment information. Instructors rated assessment information provided from objective paper and pencil methods ($\underline{M}=3.92$) as more useful in making instructional decisions than information from the other five assessment methods. Performance assessment was rated second highest by instructors for providing information in making decisions ($\underline{M}=3.78$). Information derived from informal observations was rated third ($\underline{M}=3.64$), essay items were fourth ($\underline{M}=2.49$), and standardized test scores rated fifth ($\underline{M}=1.90$). Portfolios provided information deemed of the least use by instructor in making educational decisions ($\underline{M}=1.78$).

Table 6

Use of Assessment Information Generated From Six Assessment Methods (n=158)

Decision Areas	Objective Items	Standardized Test Scores	Performance Assessment	Informal Observation	Portfolios	Essay Items
	Mode % (n)	Mode % (n)	Mode % (n)	Mode % (n)	Mode % (n)	Mode % (n)
1.	4 42.4 156	1 48.1 151	4 36.1 154	4 36.7 154	1 57.0 151	2 25.9 154
2.	4 43.7 151	1 47.5 149	4 34.2 148	4 44.3 148	1 53.8 146	2 26.6 150
3.	5 52.5 149	1 54.4 147	5 32.3 150	4 32.9 147	1 56.3 147	2 27.8 149
4.	^b 31.6 152	1 57.6 148	5 36.7 150	5 40.5 150	1 55.7 149	1 27.2 149
5.	5 47.5 151	1 50.6 148	5 35.4 147	4 36.7 148	1 58.9 147	1 27.2 149
6.	5 36.7 148	1 53.2 145	4 33.5 145	4 33.5 145	1 54.4 144	1 31.0 147
7.	5 36.7 149	1 54.4 145	4 32.3 146	4 32.3 146	1 51.3 145	1 25.3 146
8.	5 67.7 152	1 71.5 147	5 21.5 146	5 21.5 146	1 57.0 148	3 24.1 149
9.	1 42.8 145	1 72.2 144	4 24.1 144	4 24.1 144	1 72.2 144	1 63.3 145
Overall Mean	3.92	1.90	3.78	3.64	1.78	2.49
Overall SD	.70	1.01	.76	.71	.97	1.06

*Decision Areas:

1. Planning for instruction
2. Diagnosing student weaknesses
3. Monitoring student progress toward course objectives
4. Motivating students to learn
5. Evaluating effectiveness of instruction
6. Evaluating instructional material
7. Encouraging students to assess their own work
8. Assigning grades
9. Grouping students for instructional activities

^bBimodal item with modes of 4 and 5

Potential Constraints to Assessment

Table 7 depicts the summed data gathered from instructors on potential constraints they faced while conducting assessment activities. Over one-half (55.1%) of the instructors neither agreed nor disagreed that they faced potential constraints while conducting their assessment activities. Slightly more than 42% of instructors agreed that they faced potential constraints when conducting assessment activities, while slightly more than one percent disagreed potential constraints affected their assessment activities.

Table 7

Overall Constraints to Assessment Scores (n = 158)

Scale Value	Constraint Score	f	%
Strongly Disagree	9 - 13	0	0.0
Disagree	14 - 22	2	1.27
Neither Agree or Disagree	23 - 31	87	55.05
Agree	32 - 40	67	42.41
Strongly Agree	41 - 45	2	1.27

Mean = 30.82
SD = 3.97

Note. Missing data was recoded to the mean.

Instructors' Attitude Toward Assessment

Attitudinal measure of post-secondary instructors was made by summing the eight responses on the semantic differential scale. Post-secondary instructors reported having a more positive (81.1%) than negative (5%) attitude toward assessments (Table 8). The remaining instructors (13.9%) in this study reported being neutral in their attitude toward assessment.

Table 8

Instructors' Summated Attitude Scores Towards Assessment (n = 158)

Summed Attitude Scores	f	%
8 - 11	0	0.0
12 - 19	1	0.6
20 - 27	7	4.4
28 - 35	22	13.9
36 - 43	47	29.8
44 - 52	62	39.2
53 - 56	19	12.1

Mean = 42.65
SD = 8.19

Note. Missing data was recoded to the mean.

Perceived Level of Competence in Assessment

A measure of perceived competence in assessment was calculated by summing post-secondary instructor responses to 21 competency statements (Table 9). The summed scores across the 21 statements indicated that slightly less than six percent of technical and occupational instructors considered themselves to be extremely competent in the overall assessment process, 51.9% to be very competent, and 42.4% to be moderately competent. None of these instructors considered themselves to be slightly competent or not competent in assessment.

Table 9

Summed Instructor Competency Scores (n = 158)

Scale Value	Summed Score	f	%	Mean = 76.5 SD = 10.76
Not Competent	21 - 31	0	0.0	
Slightly Competent	32 - 52	0	0.0	
Moderately Competent	53 - 73	67	42.4	
Very Competent	74 - 94	82	51.9	
Extremely Competent	95 - 105	9	5.7	

Note. Missing data was recoded to the mean.

Relationships Between Dependent and Independent Variables

Potential constraints faced by instructors when conducting assessment activities was found to have a low association with the use of standardized test scores ($r=.25$) and performance assessment ($r=.20$) (Table 10). Attitude toward assessment had a moderate positive association ($r=.33$) with the use of performance assessment. Program area had a substantial association ($r_{cv}=.58$) with the use of essays as an assessment method, and competence in assessment had a low positive association ($r=.18$) with instructor use of information from portfolios as an assessment method.

Table 10

Intercorrelations Between Independent Variables and Assessment Methods (n=158)

	Intercorrelations													
X2	X3	X4	X5	X6	X7	X8	X9	Y1	Y2	Y3	Y4	Y5	Y6	
X1 Competence	*.17	*.21	-.13	*.24	.59	*.19	.13	-.09	-.01	.05	.14	.13	*.18	.05
X2 Attitude		1.00	*.31	-.01	-.07	.50	.02	-.08	*.20	-.01	.12	*.33	.05	.15
.03														-
X3 Constraints		1.00	-.04	-.06	.36	.09	-.02	*.16	.07	*.25	*.20	-.01	-.15	-.11
X4 Yrs Work Exper			1.00	*.19	.38	-.11	*.24	.12	-.01	.14	-.07	-.07	-.07	.05
X5 Yrs Teaching			1.00	*.52	*.25	*.63	.09	.09	-.14	-.04	-.06	-.06	.01	.09
X6 Program Area ^a				1.00	*.29	*.55	*.52	.47	.49	.49	.51	.50	.50	*.58
X7 Education Level ^c					1.00	1.00	*.20	*.37	-.01	-.08	.04	-.01	-.03	.03
X8 Age						1.00	1.00	.09	.09	-.10	-.06	-.04	-.10	.02
X9 Sex ^b							1.00	1.00	.03	-.14	-.14	.05	-.07	.05
Y1 Objective								1.00	*.22	.06	*.18	.04	.08	
Y2 Standardized									1.00	.09	-.03	*.17	.06	
Y3 Performance										1.00	*.48	*.31	.06	
Y4 Informal Observations											1.00	*.24	.14	
Y5 Portfolio												1.00	1.00	
*.28														
Y6 Essay														1.00

Note. Unless otherwise noted reported coefficients are Pearson product-moment correlations. Relationships among dichotomous and multichotomous nominal variables are reported as Cramer's V correlations. Relationships among dichotomous nominal and interval variables are reported as Point-biserial correlations. Relationships among ordinal and interval variables are reported as Spearman rank-correlations. Relationships among multichotomous nominal and ordinal variables are reported as Cramer's V correlations. Relationships among multichotomous nominal and interval variables are reported as Cramer's V correlations.

^aMultichotomous nominal variable.

^bDichotomous nominal variable.

^cOrdinal variable.

* $P < .05$

Regression of Dependent Variable Upon the Independent Variable

It was found that instructors within different program areas placed more weight upon the use of portfolios as an assessment tool (Table 11). The program area of marketing accounted for more than six percent of the variation of using portfolios in making instructional decisions. Two program areas (marketing and business occupations) each accounted for slightly more than three percent of the variation in the use of essay methods in making instructional decisions (Table 12).

Table 11

Semi-Partial Regression of Use of Portfolios On All Independent Variables (n = 158)(Stepwise Entry)

Variables	<u>sR²</u>	<u>b</u>	<u>t</u>	<u>p</u>
Marketing (Program Area) ^a	.065	1.53	3.49	<.001
Potential Constraints	.029	-.581	-3.30	<.001
Attitude	.043	.184	2.38	.018
Competence	.033	.367	2.46	.015
(Constant)	1.42			

Standard error = .935

R² = .17

Adjusted R² = .15

For model: F = 7.37, p < .001

^aMultichotomous variables were dummy coded: Marketing = 1 and Other = 0

Table 12

Semi-Partial Regression of Use of Essay Methods On All Independent Variables (n = 158)(Stepwise Entry)

Variables	<u>sR</u> ²	b	t	p
Marketing (Program Area) ^a	.033	1.26	2.51	.013
Business Occupations (Program Area) ^a	.031	.448	2.23	.027
(Constant)	2.35			

Standard error = 1.077

R² = .064

Adjusted R² = .052

For model: F = 5.08, p < .001

^aMultichotomous variables were dummy coded: Marketing = 1 and Other = 0. Business Occupations = 1 and Other = 0

Instructors' attitudes toward assessment had a moderate positive association (r = .33) with the use of performance assessment and was found to explain 11.2% of the variation in instructors use of the assessment method (Table 13). Attitude toward assessment was also found to explain 4.3% of the variation in instructors' use of portfolios as an assessment method (Table 11).

Table 13

Semi-Partial Regression of Use of Performance Assessment On All Independent Variables
(n = 158)(Stepwise Entry)

Variable	<u>sR</u> ²	b	t	p
Attitude	.112	.248	4.33	<.001
(Constant)	2.45			

Standard error = .742

R² = .112

Adjusted R² = .106

For model: F = 18.73, p < .001

Potential constraints faced by instructors during the assessment process explained 2.8% of the variation in the instructor's use of standardized test scores while the program area of Health Occupations explained 9.2% of the variation (Table 14). There was not a statistically significant association between attitude toward assessment and use of portfolios, yet when it was entered into a regression model with three other variables (marketing, constraints, competence) it explained 4.3% of the variation in instructors' use of portfolios as an assessment method (Table 11).

Table 14

Semi-Partial Regression of Use of Standardized Test Scores On All Independent Variables
 (n = 158)(Stepwise Entry)

Variables	<u>sR</u> ²	b	t	p
Health Occupations (Program Area) ^a	.092	.405	3.14	<.001
Potential Constraints	.028	.555	2.19	.03
(Constant)	.329			

Standard error = 1.01

R² = .120

Adjusted R² = .108

For model: F = 10.11, p < .001

^aMultichotomous variables were dummy coded: Health = 1 and Other = 0

Competency level was found to contribute only 3.3% of the variation in instructors' use of portfolios (Table 11). While competence accounted for a small percent of variation in instructors' use of portfolios as an assessment method, it did not explain a significant amount of variance in the use of objective paper and pencil methods, standardized test scores, performance assessments, informal observations, and essay assessment methods.

CONCLUSIONS AND RECOMMENDATIONS

This descriptive study was designed to describe instructors' use of assessment methods in post-secondary technical and occupational classrooms and laboratories. The study further investigated the relationships between use of student assessment information and characteristics of post-secondary technical and occupational instructors in the State of Ohio.

Conclusions

This section contains the conclusions reached based upon the findings from this study. As a reminder, an attempt was made to control for non-response error by comparing non-respondents to respondent. Over sampling of the non-respondents was necessary to obtain a sufficient number of respondents to make a comparison using a t-test. Therefore, the results of this study cannot be generalized to the population.

Use of Assessment Information

Respondents reported using objective paper and pencil methods the most for student assessments. Since technical and occupational instructors teach subjects that involve many student performance activities, it was surprising that objective paper and pencil methods of assessment were used more than performance assessments. In previous research, Kershaw (1993) found that secondary vocational teachers tended to place more emphasis upon the use of performance assessments than on other assessment methods.

Standardized test scores were found of little use in making instructional decisions by the respondents. This tends to indicate that instructors use of standardized testing continues to be little by instructors in making educational decisions.

Portfolios were found the least used source of student assessment information for decision-making. Although this assessment method continues to be promoted as an effective assessment method within education, instructors who responded tended not to use the information generated from portfolios.

Potential Constraints to Assessment

Post-secondary technical and occupational instructors within this study were split between agreeing and neither agreeing nor disagreeing regarding the potential constraints to the assessment process. The results of this study were similar to those findings reported by Gullickson (1984). Kershaw (1993) also found similar results in his study of secondary

vocational teachers. In addition to the predominately neutral findings, other studies found that limited time for planning was the constraint that received consistent higher levels of agreement.

Instructors' Attitude Toward Assessment

For the most part, the respondents had positive attitudes toward assessment and agreed with those reported by Green (1990) where attitudes of both preservice and experienced teachers toward classroom assessment were positive. Additionally, Kershaw (1993) found that secondary teachers tended to have a positive attitude toward assessment.

Perceived Level of Competence in Assessment

Technical and occupational educators in this study reported that they perceived themselves to be moderately to extremely competent in the assessment process. These results were in line with findings from Gullickson and Hopkins (1987) that described teachers as being comfortable in their knowledge and abilities related to the assessment process. Dorr-Bremme (1983) also concluded that teachers perceived their use of assessment techniques as accurately measuring the effects of their instruction.

Results from this study, in the area of the competency level of instructors in assessment, conflicted with other research. Previous research found that teachers were lacking the necessary skills in assessment selection, development, and use (Newman & Stallings, 1982; Carter, 1984; Hills, 1991). In addition, Gullickson and Hopkins (1987) and Schafer and Lissitz (1987) supported the position that preservice courses have not been adequate in developing the level of desired assessment skills in teachers.

From previous research, there has been evidence to suggest that teachers may tend to exaggerate their level of competence in assessment when data is obtained in a self-reported manner. Marso and Pigge (1989) found that teachers, principals, and supervisors do not agree on the proficiency level of teachers' test construction and test planning proficiencies. Teachers tended to rate themselves as much more proficient in assessment than did their supervisors or principals. Findings reported by Green and Williams (1989) indicated that teachers with less training in tests and measurements perceived themselves to be more knowledgeable about interpreting standardized test scores than teachers with more training in this area. If the instructors' perceived competence levels can be interpreted as being exaggerated, then the findings that 42.4% of instructors reported a moderate level of competence in assessment becomes more important. The higher levels of perceived competence, the small significant relationship between perceived competence and the use of portfolios, and the past research that identified the deficiencies of teacher assessment skills suggest the potential need for the upgrading of technical and occupational education instructor competence in assessment practices.

Relationships Between Dependent and Independent Variables

Program areas had a substantial association with the use of essays as an assessment method. This finding tended to indicate that respondents from marketing and business occupations used essay methods more than their counterparts in other technical and occupational programs. Competence in assessment had a low positive association with instructor use of

information from portfolios as an assessment method indicating that respondents who perceived themselves as more competent in assessment tended to be more likely to use portfolios for assessment.

A moderate relationship ($r=.33$) was present between attitude and use of performance assessment, which conflicts with some previous research. Green and Stager (1986) concluded that the relationship between attitude and assessment use was of no practical importance. Kershaw (1993) also concluded that the relationship between attitude and assessment use was of little importance. The results of this study indicated that although attitude may not be important in the use of all the different types of assessment methods, it was of some importance when using performance assessment.

Regression of Dependent Variable Upon the Independent Variables

This study failed to demonstrate that instructor characteristics accounted for much of the variation in their use of assessment information. Age, sex, years of teaching experience, years of related work experience, and educational level did not account for a significant proportion of the variation in the respondents' use of any assessment method.

Though there was not a statistically significant association between program area and standardized test scores, it was found that the health occupations program area explained nine percent of the variation in the instructors' use of standardized test scores. This may have been due to the use of standardized test scores as an entry and exit requirement for students in many health occupation programs.

Program area was found to have a substantial association with the use of essay methods for making educational decisions. Two program areas (marketing and business occupations) each accounted for three percent of the variation in the use of essay methods in making instructional decisions. This indicated that essay methods may be used more by instructors in marketing and business occupation programs than instructors in other program areas.

This study was unable to support the claim that potential constraints faced by instructors while conducting assessment activities played a major part in explaining variation in instructor use of assessment methods. The use of two assessment methods (portfolios and performance assessments) were shown to be related to constraints faced by instructors while conducting assessment activities, but a very small proportion of variance was explained by these constraints.

Competence accounted for a small percent of variation in instructors' use of portfolios as an assessment method, however, it did not explain a significant amount of variance in the use of objective paper and pencil methods, standardized test scores, performance assessments, informal observations, and essay assessment methods. These findings were slightly different from what Kershaw (1993) found. Kershaw found that competence in assessment contributed a significant, yet small portion of variance in teachers' use of objective paper and pencil methods, use of performance assessment and use of informal observation.

Recommendations

Recommendations from the results of this study will be made for practice and future research. Based upon the review of literature, the findings of this study, and the previous conclusions, the following recommendations are proposed.

Recommendations for Research

1. Because this study was able to explain only a small amount of variance in post-secondary technical and occupational instructors' use of assessment methods, it is recommended that each of these methods be studied independently. Also, it is suggested that qualitative research be conducted on each of the assessment methods to help identify other variables that may contribute additional variance in explaining the use of assessment information in making educational decisions. Open-ended responses could be collected regarding instructor attitude toward assessment, competence in assessment, and potential constraints in the assessment process.
2. Since attitude toward the overall process contributed little to understanding the use of assessment by instructors, it is recommended that future research relate this attitude toward the specific assessment methods. What are instructors' attitudes toward objective paper and pencil assessment methods, standardized testing, performance assessment, informal observations, portfolios, and essay methods? Information gathered on the attitudes toward each assessment method may explain more about the use of these methods by educators.
3. Individual competence in assessment was rated rather high by instructors in this study, yet it only explained a small proportion of variation in the use of assessment methods. It is recommended that future research investigate the level of competence of the instructors in each assessment method. Information generated on the level of competence with each assessment method may find different levels of competence within each assessment method. Research such as this may also identify strengths and weaknesses that instructors have related to the assessment process. This data would be valuable to in-service and pre-service teacher education programs in updating their courses and workshops.
4. Instructors rated their level of competence on the high side in this study, yet it explained little of the variation in the use of assessment methods. This may indicate that instructors overstated their competence level. For future research on the level of instructors' competence, it is suggested that self-reported competence levels be compared with observed instructors' competence level. In addition, since competence in certain areas has been found to be related to education within that area, it is recommended that research be undertaken to collect information at the different colleges and universities to learn how many of the courses in the pre-service technical and occupational education curriculum concentrate on assessment methods and what assessment methods are emphasized within these courses.

5. To provide technical and occupational instructors with ideas on how the different types of assessment can be used within their specific programs, it is recommended that research be conducted to investigate and collect examples of how instructors (within the different program areas) use the different assessment methods. If instructors can see specific ways that these assessment methods are used, they may be better able to carry out these assessment techniques within their individual programs.
6. Recent emphasis on the development of national skill standards will have an impact upon assessment in technical and occupational programs. Future research should investigate how and whether these standards are being used as an assessment tool.
7. It is recommended that the findings from this research be compared with what is being taught in pre-service and in-service teacher education programs. It may be that instructors are only assessing students with methods with which they are familiar.
8. The general population has started calling for public educational institutions to be more accountable. One measure of accountability is the level of proficiency of the students. Students tested with a variety of assessment methods will provide more evidence to the public that these students are learning what they are supposed to learn. Consequently, instructors need to be able to use different kinds of assessment methods.

Recommendations for Practice

1. Findings from this study indicate that certain demographic characteristics have little bearing on the use of different assessment methods. This suggests that either assessment practices change very little as an instructor gains instructional and educational experiences or that instructor assessment strategies and preferences developed early in their careers are changed very little over a period of time. Therefore, it is recommended that pre-service and in-service educators provide a curriculum that includes different assessment methods and how these methods can be used in the different program areas. Post-secondary educational institutions should provide some means of recognizing those instructors that use different assessment methods within their individualized programs.
2. Post-secondary technical and occupational instructors within this study were not using standardized test results. Such scores may be helpful to instructors in determining strengths and weakness of their students. Instructors within the different program areas may need further education about how they may use standardized test scores to enhance their programs and student achievement.
3. It is recommended that technical and occupational instructors continue to use performance assessments within their programs. This assessment method continues to an appropriate method for measuring learning performance-based environments.
4. Data gathered from this study indicated that the different types of assessment methods are not evenly used. This could be due to the lack of understanding by instructors of other assessment techniques. The different assessment methods may be prime candidates for topics of in-service opportunities for instructors.
5. Student achievement levels can vary by the different ways they are assessed, so it is important students are provided the opportunity to demonstrate their knowledge and skill

level in a variety of ways. Within the field of education, certain assessment methods tend to be used more than other assessment methods. Instructors should determine how and whether these assessment methods can be used within their program areas, but they should not shift all of their assessment activities to just one method.

6. There is a saying that “we teach how we are taught”. If this is true about teaching, then it may also be appropriate for assessment. University faculty, in pre-service teacher education programs, should use different types of assessment methods within their classes to serve as examples for their students.

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THE EDUCATION OF RETAIL MANAGERS THROUGH MANAGEMENT TRAINING PROGRAMS IN APPAREL RETAIL ORGANIZATIONS

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Abstract

The purpose of this study was to determine the nature and extent of continuing education and management training programs used by apparel retail companies; and to document their programs according to their content, objectives, methods, assessment techniques, and evaluation procedures. Methodology was based on qualitative research, using the multiple-case study method, with an open-ended questionnaire. Interviews of apparel retail managers and trainers gave insights into: (a) the content of education and management training programs, (b) the training methods, (c) the assessment tools, and (d) the evaluation techniques used in those training programs.

The findings show that, since the restructuring of the selected companies during 1995 and 1996, overall educational reimbursement to employees had decreased. Training programs used both on-the-job and classroom methods, and were conducted primarily in stores. Managers were responsible for most of the training. Assessment tools varied, with observational techniques, examinations, self-evaluations, and reviews reported. Participants commented on the lack of overall program evaluation, training consistency, and communication.

Conclusions of the study indicate that management training content was limited to technological advances and had little content pertaining to the changing demographics of employees. Methods and assessment tools used in training were conducive to learning. Program goals and objectives were not always clearly defined. Evaluations of the overall effectiveness of a training program were rarely conducted.

Recommendations are that retailers and educators should: (a) update programs to meet the technological and human relation needs of a changing retail environment, (b) consider all company employees as potential trainers, (c) utilize different assessment techniques and methods of teaching, (d) standardize and evaluate training programs, (e) improve communication among retail company personnel, and (f) continue to develop curricula that include communication, feedback and assessment techniques, and field practice.

Introduction

The changing workplace, the reorganization of retail corporations, and the growing need for cooperation among industry, government, and education have made many retail companies reassess the need for the education and training of their workforce. Retail companies have merged and acquired other retailers. Since the late 1980s, the industry has changed from a seller's market to a consumer-oriented one. Government regulations pertaining to employees and consumers have been increasing. All of these have made the assessment and evaluation of education and training opportunities an important function of retail organizations. As Crawford and Webley noted, "Continuing education and training of the workforce is rapidly emerging as a crucial problem for the 1990s in the USA, the UK, Canada, and indeed among all developed nations" (1992, p. 1).

Education and development programs are needed by both apparel retail managers and their organizations. The evolution of the company, operational changes, smooth succession of managers for top-level positions, job performance and improvement for managers, and preparations for advancement are equally important to both the careers of managers and the survival and growth of businesses (Black, 1979). The education and development of new and experienced retail managers is fundamental for the growth of a retail company.

Although their goals are different, there is a need for collaboration among businesses, government, and higher education facilities to expand the ability of managers to educate themselves and the workforce (Matthews and Noorgaard, 1984). This study is important both to educators and retailers. "The emphasis on educational accountability requires that students pursuing retailing careers be prepared through related coursework" (Woodward, 1992). Furthermore, high personnel turnover rates are an expensive problem within the retail industry. The cost of training personnel is high. According to Pettijohn and Pettijohn (1994), the amount spent on retail sales training in 1990 averaged \$3,737 per trainee. The use of successful training techniques could reduce the costs of educating new personnel and of retraining burned-out managers, and lower turnover rates.

Purpose and Objectives

The major purpose of the study was to explore, document, and describe the nature and extent of continuing education and management training programs used by apparel retail companies. Questions of the study included, but were not limited to:

1. What were the content and objectives of the continuing education and management training programs used by the sample retailers? Were these programs job specific and technical or did they also include "human relations" topics?
2. Who did the training? Where and when was training held?
3. What methods and assessment techniques were used by the trainers? Did the trainee receive feedback?

4. Were evaluation procedures used in the companies' training programs? How did the trainer measure the effectiveness of a particular program? How were goals and objectives of the total program evaluated?

An additional purpose of this study was to inform educators and retailers about retail management training practices in order to better prepare their students and employees. Studying the content and methods used in retail management programs could help educators develop curricula that will help their students to be knowledgeable and prepared for the workplace.

Theoretical and Conceptual Base and Related Literature

The education and development of new and experienced retail managers is fundamental for the growth of a retail company. Prior to World War II, management training programs were rare (Black, 1979). However, by the 1990s, many retail companies had organized human resources or training departments that oversaw the development of their managers' education.

The pedagogy of retail management training has developed into a science similar to teaching in an educational institution. Certain elements are identical in planning a successful educational or training program. A trainer is a teacher who must understand both the company's and the trainee's philosophies, objectives, and goals in order to plan a program that is profitable for both the company and the employee. To develop the best methods and resources to reach those aims, a trainer should continually assess and evaluate instructional aids, the training program, and the comprehension and resulting behavior of the trainee (Callahan, Clark, and Kellough, 1992).

"Raising Retail Standards," developed by the National Retail Federation (Reda, 1995), as well as Ahern's (1982) study, concentrated on training for entry-level positions in retailing. McCord (1983), for the National Institute of Education, documented tuition reimbursement by retailers. Training theory research identified various categories of variables that enhanced learning effectiveness. Three of these--learning experience, individual characteristics, and work environment--were recognized by Baldwin and Ford (1988). However, Berardinelli, Burrow, and Jones (1995) reported that practical impact on organizational performance is what makes training significant. The practical variables Shepherd and Ridnour (1995) examined included variables in methodology of training. Although the Shepherd and Ridnour study was limited to sales training, not retail management training, the analysis of methods and contents laid a foundation for this study.

Research Methods and Procedures

Sample

The sampling design was goal-oriented, as defined by Wiersma (1991). The goal was to interview personnel in apparel retail stores' home offices or training departments. Wiersma (1991) also stated that practicality and economy are justification for selecting a particular sample. Thus, the sample selected was located in one particular state. A list of retail companies was randomly selected from a list of businesses meeting the following criteria:

1. Operated a minimum of 50 nationally located branches, as listed in Fairchild's Retail Stores Financial Directory 1996 (Benjamin, 1996).
2. Listed in the state's "Service Directory, 1994-1995," classifying businesses by the U.S. Office of Management and Budget's Standard Industrial Classification (SIC) Manual (1987).
3. Represented (SIC) industry groupings—5311, department stores; 5611, men's and boys' clothing and accessories; 5621, women's clothing stores; 5632, women's accessory and specialty stores; children's and infants' wear stores; 5651, family clothing stores; 5661, shoe stores; or 5699, miscellaneous.

The interviewees within each company were selected for their expertise and their different perspectives about apparel retail management training and education. Two trainers and three managers from each of three companies were interviewed. The selection of the interviewees reflected replication logic and developed descriptive scenarios. This balance in the choice of interviewees represented different perspectives within the study as Rubin and Rubin (1995, p. 69) suggested.

Since the purpose of this qualitative study was to explore, document, and describe the arena of apparel retail management education and training, the use of this sample documented both the variations and the similarities of those programs. This purposeful sampling (Seidman, 1991)--defining terms, determining the range of population, narrowing the population by sites, and selecting the levels of groups within the sites--enabled the manageability of that population. Descriptive and conceptual categories were able to be developed.

Instrument

A fourteen page questionnaire was developed for the interviews. Questions were developed after completion of a literature review of studies concerning qualitative research methods and an overview of the apparel retail industry, including management turnover, education, and training methods. Questions were written to document apparel retail education and training--its content, assessments, and evaluation. A panel of experts including a researcher, a trainer, and a manager (who were not involved in this study) reviewed the questionnaire. Closed-ended questions were used for demographics including length of employment, position, and experience. Open-ended questions were employed to group similar topics such as: pedagogical ideas, educational objectives, methods of training, assessment, evaluation, and perceived results.

Procedure

The use of qualitative research and the multiple-case study with an interview technique provided an appropriate method for examining the content and objectives of the education of retail managers through management training programs in apparel retail organizations. I.E. Seidman's (1991) method of conducting interviews was adapted for this study. The study's design helped to maintain data collection protocol and allowed for the use of grounded-theory analysis.

The study's boundaries were limited to three apparel retail companies in a selected state. The three store types selected were a department store, a specialty store, and an off-price apparel store. To ensure validity of data, a detailed plan for collected data was established. First, contact was made by telephone. A request for interview, confirmation letter, and follow-up prior to the interview were repeated in each case. After the interviewee signed the consent form, the interview was audio-taped and the interviewer administered the same questionnaire with each participant.

A multiple-case study format was developed. Replication logic in this multiple-case study was analogous to a quantitative study's use of multiple experiments in sampling logic (Yin, 1994, p. 45). That is, interviews, data categorizing, and analysis for each of the three companies that were examined were conducted in the same way. Field notes, other notes, and transcripts of the interviews were made. This would enable replication for any future study.

Procedures for data management, reduction, and display were developed. Data were transcribed, categorized, indexed, and examined for analysis using the Non-numerical Unstructured Data Indexing Searching and Theorizing computer package (QSR NUD•IST®) (Qualitative Solutions & Research Pty. Ltd., 1996). Steps in data analysis were identified. Each interview was recorded and transcribed. The interviews were stored into the data analysis computer program, using text only data as an on-line document. The text was reviewed and classified by subject areas and classifications, and segmented by units. Each text unit was examined and defined. Indexing and patterning of classified units enabled the researcher to analyze the documents by text unit category and to interpret the data within a thematic framework.

The study's design incorporated a three-in-one multiple-case design. Data were gathered from three different retailers and analyzed as one unit. The entire analysis and report of findings consisted of cross-case analysis with individual cases dispersed throughout the findings. This method of analysis, multiple sources, and protocol helped to maintain anonymity of the subjects and increased the reliability of the study.

The strategy used for analyzing this research was based on the grounded-theory approach. Categories were generated until theoretical saturation was met. That is until no other new categories or themes were found. Grounded-theory analysis not only permitted the categorizing of data, but also allowed for linkages. This strategy built more reliability into the study.

In order to use grounded-theory analysis, the researcher followed the following steps, as adapted from Bryman and Burgess (1994, pp. 4-7):

1. immersion into data by listening to the interviews and reading the transcripts,
2. examination of the study's objectives by using the questionnaire and identifying themes,
3. labeling of topics and looking at developed patterns,
4. coding of each individual transcript, and
5. looking at patterns, attitudes, and experiences of the interviewees.

Two basic principles of qualitative research were followed: First, completeness was met by choosing people that are knowledgeable about the subject. Interviews were conducted and the subjects were allowed to talk until a sense of the meaning of a concept or a process was understood. Second, saturation was brought about when the narratives repeated the same events and similar varieties of interpretation occurred (Rubin and Rubin, 1995, p. 73).

Findings

Data collected for the study of the education of retail managers through management training programs in apparel retail organizations consisted of non-numerical text units from 15 interviews of managers and trainers within three apparel retail companies of a selected state (Table 1). A list of 52 nodes (categories) used in the study was extrapolated from 14,125 text units. Information concerning the objectives and questions of the study was documented and analyzed, using either descriptive or conceptual categories.

Table 1
Positions and Experience of Interviewees

Position	n	Average Years in Retail
Director of Training	3	11
Training and Development Manager	3	8
Sales Manager	3	6
Store Manager	6	10
Totals	15	9

The following are examples of the interviewees' perceptions to the study's questions.

1. What were the goals, content, and objectives of the continuing education and management training programs used by the sample retailers? Were these programs job specific and technical or did they also include "human relations" topics?

Restructuring of companies, both consolidation and expansion, was affecting the organizational structure of these retailers. Maintaining profitability and the continuity of management personnel within these companies were the most important goals of training. (Other goals both company oriented and personnel oriented are reported in Table 2.) One person concluded:

It's the bottom line. It's how we're going to increase sales and, you know, the two major goals of our company are to increase sales and develop people. They both tie in, if you develop people you will increase sales and those are the two priorities. And, to do that, training is obviously a major initiative in developing people.

The managers that were interviewed said that management and staff shortage was a major problem and that to train a potential manager was time intensive. For example, one manager, concerned about staffing problems, said:

Well, they plan on opening more stores. However, they're consolidating some of the management. Some of the smaller stores are going to have one manager for two stores as opposed to two. So, it's going to affect everybody.

The interviewees pointed out that many managers are career-oriented and that they wanted to improve their skills. "Some people, who certainly want to get ahead, usually end up taking material home and learn themselves." One trainer thought about learning and training this way:

I think that's human nature--most people want to learn and want to grow in a position. I would imagine that would be a motivating factor. I think a lot of people equate personal development with also getting ahead. So, if I want to get to the next level; what type of things do I need to work on for myself, right now?

Table 2
Goals in Management Training Programs as Reported by Interviewees

Company Goals	Management Trainee Goals
Build a Solid Team	Career Movement
Consistency	Wanting to Learn
Structure	Growing in Your Position
Strengthen the Company	Going Forward
Internal Promotion	
Increase Productivity	
Continuity of Managers	

The training content in these programs was mainly job specific. "Teaching people different procedures in the store," was one manager's answer. The attainment of these objectives included operating procedures and fashion theory—"We call it merchandising." However, home office trainers reported that the soft-skill, human relations areas, such as time management, communication, leadership, and others, were also included in training competencies.

2. Who did the training? Where and when was training held?

Managers conducted most all of the in-store training, usually technical and store operation skills. As has previously been mentioned, training managers is time consuming. The time constraints of store or department managers left teaching the trainee lessons "on the side" and in between times. Human characteristics play an important part in how and what each manager taught the new managers. One manager stated that attitude was everything:

On my level I try, I try to make it--to have my employees be more responsible for themselves. When I interview someone I stress right up front that they have to get to work on time. I was stressed that at a young age. I grew up on a farm and I always had stuff to do. But, sometimes you don't want to go to work, but in

reality most people have to. I stressed get here on time. I think that's the most important--it starts your day off--it's, let's get up and know you have to do this and not, you know, say you didn't have a job, I mean your attitude towards everything is just down the tubes, I think.

Some training, usually the soft-skill training sessions, was conducted in corporate home offices, conducted by home office or human resources personnel. All the interviewees said that training was held during the trainee's working hours. Training sites were most often located within the store, with some off-site training being conducted. One manager commented,

Through experience, it's the best way and really the only way. You can be taught in the classroom, but you actually are thrown into a situation—presentation, where it's real and it's live and you have to make a decision.

3. What methods and assessment techniques were used by the trainers? Did the trainee receive feedback?

The methods used most often for training were hands-on, on-the-job training for technical objectives. Classroom, role play, and other methods were used to teach human relation objectives (Table 3). Mentoring was mentioned by both managers and trainers. Geiger-DuMond and Boyle (1995) suggested, a well-designed mentoring program will help develop strong managers. The participants of this study acknowledged that mentoring is a growing method in retail training. One interviewee said:

And I was very fortunate to have another department manager who was my buddy, who I worked really close with. Because, when we first opened the store, they over hired managers. Then it decreased, slowly. So, I was working very closely with her and she took me under her wing and trained me. So, I was very fortunate to have that happen to me.

Table 3
Methods Used In Retail Management Training Programs of Study Participants

Methods
On-the-Job
Classroom Lecture
Seminar
Coaching
Delegation
Mentoring
Buddy System
Role Playing
Discussions
Case Studies
Videos
Training Manuals
Checklists
Group Training

When asked what assessment tools were used in their management training programs, the interviewees responded that observation was used most often. Other assessment tools, such as exams, were also used. "I'm a firm believer in 'inspect what you expect.' If you get 86% on the skills assessment, congratulations we're going on."

The interviewees said that feedback to the trainee was usually immediate. Self-evaluation techniques and written performance evaluations were used. Managers used self-assessment when quarterly reviews, promotions, or pay raises were discussed. Self-evaluation was also used in conjunction with action plans. In one case, a store manager was training an assistant manager to be a store manager. She spoke about how she used self-evaluation techniques:

Yes, we would ask them to [do them] more formally as the assistant grows with the company, self-evaluations are built into every evaluation period. So, for any position in the field they should be doing a self-evaluation . . . the store manager would ask an assistant, 'where do you rate yourself?'

Table 4
Assessment Tools in Retail Management Training Programs as Reported by Interviewees

Assessment Tools
Observation
Oral Questioning
Group Presentations
Checklists
Action Plans
Written Tests
Self-Evaluation
Performance Evaluations
Secret Shops

4. Were evaluation procedures used in the companies' training programs? How did the trainer measure the effectiveness of a particular program? How were goals and objectives of the total program evaluated?

Determining training program evaluation techniques varied within these companies. From the store level perspective, some interviewees considered quarterly reviews and checklists as means of evaluating program effectiveness. Evaluation procedures included, but were not limited to, performance reviews, written examinations, and observations (see Table 5). Precise program evaluation was not performed regularly, if at all. A trainer commented:

I honestly would like to see more of that [total program evaluation] done. [The training manager] and I talk about [it], but we lose that 'learning evaluation.' But, we're working on ways now to gauge how has their performance changed after it [the training program]. It just so hard to manage with the number of stores that we have. But, that's our--one of our goals. But, it isn't formally in place yet. We get a lot of informal, subjective feedback. But nothing formal.

Table 5
Training Program Evaluation Techniques as Reported by Interviewees

Evaluation Techniques
Quarterly Reviews
Observation
Sales Per Transaction
Written Exam
Skills Assessment
Class Enrollment
Management Turnover
Secret Shops
Feedback

Exact figures for management turnover rate, which could allow for a clearer measurement of program effectiveness were neither kept nor known by the interviewees. Although for her store, one manager noted:

[We lose] managers who have been here [as little as] two months just as quickly as those people that have been here [as long as] 20 years. If we lose one more manager it will be 100% turnover rate in a year and a half.

Communication among managers and senior personnel was perceived to be lacking by most of the interviewees. Disillusionment with the training program and lack of overall assessment was expressed. One interviewee noted:

I think it is that we don't deliver what we promise to deliver in an interview. I think we say, you know, we'll train you, you'll receive feedback. This is the expectation of the company. And, I think, a lot of people become disillusioned-- people that have left the company. I've had assistants that have left, who said this just wasn't what I thought it was going to be. Or, as a store manager, that did not do a good enough job training them initially. Obviously, there are some personal reasons and things like that. But, most often, associate ranks as well, we don't deliver what we promised.

Conclusions and Recommendations

Conclusions

This study presented the managers' and trainers' descriptions and perceptions of their companies retail management programs. An internal understanding of the content, objectives, methods, assessment, and evaluation tools used in retail management training programs can be appreciated. Reviewing these programs from the perspectives of the people who directly affect and are directly influenced by the training is an approach not used uniformly by training program developers, as evidenced by the lack of program evaluations described by the participants in the study.

Apparel retailing in the United States has gone through many changes, from the small owner-run businesses of the 1800s and early 1900s, to the multi-chain organizations of today. In the 1990s, retail corporations, for the most part, are large conglomerates. Mergers, acquisitions, and restructuring of departments, divisions, and even whole companies have set the current direction in retail corporations.

Most of these multi-chained retailers had recognized the need to educate and train their employees if their goals to satisfy the consumer and make a profit were to be met. However, educating and developing top retail managers comes with a cost; an outlay of both management's time and company's money. According to the interviewees, neither of these resources was used adequately by any of the companies.

Retailing has been in constant transition. As documented by the study, training programs also have been continually changing. Not only has organizational restructuring necessitated change in the merchandising content of training programs, but education in technological advances also has been included for the company to remain competitive. New technology, computers, and e-mail, for example, have changed the way report filing and scheduling has been done. In some companies, this has resulted in a need for computer classes pertaining to the companies' software applications.

The consumer market also has changed. In the 1990s, the retailing industry has become more consumer driven than in the past. Customer service has been determined to be a primary strategy of retail companies. Training departments, in off-price as well as specialty and department stores, have recognized this and have developed programs to improve the quality of customer service. Everyone of the participants interviewed mentioned quality customer service as being vital for their company.

Not only have the consumer markets changed, but retail employees and managers face different challenges. Lifestyles and demographics of employees and the responsibilities of managers have stimulated training departments to try to accommodate schedules and include more educational objectives pertaining to human relations. Courses in leadership training, learning styles, diversity, and time management have been offered.

Some training programs have been designed to be both learner and company goal oriented. Methods used in the industry have tried to meet both of those issues by using various techniques. For job specific skills, such as store procedures and merchandising, manager-trainers used on-the-job approaches such as mentoring, buddy system, coaching, and delegation. On the one hand, on-the-job training gives a manager an extra person on the staff to rely on when customer traffic increases; but, on the other hand, finding time for a manager-trainee is difficult for many managers.

Training topics such as communications, self-esteem building, and leadership have been taught using role playing, case studies, and group seminars. Usually, as noted in the study's interviews, most of this type of training was done off-site, customarily in a training center, and with a company trainer.

Although, in the study's literature review, computer methods of training were mentioned, they were not suggested by interviewees within the study. The exception was the use of computer training for new software applications having to do with the cash register and employee scheduling. More hands-on and trainer-trainee methods were used in these areas by participants of this research.

Trainers, managers, and literature have maintained that the day-to-day operations of a store were best learned on-the-job. As documented in the study, learning by doing and the guidance of a mentor were used to develop a quality manager able to deal with technical problems as well as employee relations problems.

As some studies had indicated (Baldwin & Ford, 1988; Edwards, 1950; Bluestone, et al. 1981; and Berardinelli et al., 1995), training programs should also include education in communicating, organizing, and leadership competencies. Managers needed and wanted these human relations courses, but also wanted practical applications and examples so that knowledge could be applied in the store.

The communication of existing and new programs was not constant in the retail companies studied by this research. The rapid expansion and restructuring of retail corporations had developed communications and consistency problems. Some personnel in the field did not know what programs were available to them, and if they did, they often felt that their company's senior management did not listen or were not aware of store management problems.

The time constraints that managers had to contend with made it very difficult for training new managers. Retail management responsibility had grown to not only include merchant-related duties but also included training obligations. All trainers and managers thought that a formalized, consistent manager training program needed the necessary time to be able to develop a quality manager.

Lastly, although assessment techniques were being used for individual program objectives, evaluations for the overall management training programs were inconclusive. These respondents seemed unable to distinguish between the assessment of trainees, who have undergone company

training, and the evaluation of the effectiveness of the training program itself. The same methods and measures were repeated by the respondents when queried about assessment tools and program evaluation methods. It is also possible that none of the companies employed a systematic means of establishing program effectiveness. Managers and trainers both claimed that program evaluations were either inconsistent or non-existent.

Implications

This study has provided a qualitative approach to researching education and management training programs in the apparel retail industry. This non-statistical approach allowed the researcher to describe the perceptions of those interviewed; how they thought their training programs were in their own words. The implications of this multiple-case study research are drawn from the interviews conducted. The descriptions and explanations are as were perceived by the interviewees. Construct validity and reliability techniques were built into the research design, allowing for replication and induction in other cases.

The study, in presenting the managers' and trainers' descriptions and perceptions of their companies retail management programs, provides an internal understanding of the content objectives, methods, assessment, and evaluation tools used in retail management training programs. Reviewing these programs from the perspectives of the people who directly effect and are directly influenced by the training is an approach not used uniformly by training program developers, as evidenced by the lack of program evaluations described by the participants in the study.

This multiple-case study explored and described the education and training used by three major retail apparel companies to develop their managers. The interviews told the stories of those directly influenced by the programs. Experienced and new managers and trainers commented on the questions raised by the study. These individual observations documented a picture of what is the real world in the management education and training programs of these retail companies, today.

Recommendations

The development and application of a successful apparel retail management training program could help satisfy the primary goals of companies in the retail industry, specifically to make a profit and satisfy the customers. The analysis of the findings in the study has resulted in the following recommendations:

1. The content of management training programs for apparel retail managers should be continually updated to include both new technological advances in retailing and human relations areas to accommodate the changes in retail technology and the changes in personnel lifestyle needs. Since the apparel retail industry is changing constantly, the training program directors should update the structure of their training programs accordingly.

Management trainee selection could be benefited with the development of specific criteria related to a particular store's needs. Companies should continue to look at internal and external sources for management staffing in order to bring fresh ideas and continuity to the management process.

2. The training programs should continue to include all store employees--supervisors and experienced employees, as well as managers and trainers to help train new managers.

Specific times need to be scheduled, away from the store, to allow managers to train their manager candidates. Training schedules need to be flexible to oblige the different learning styles of trainees as well as the store's traffic flows and business needs.

Training departments should continue to use all types of learning methods. In particular, mentoring with an experienced manager should be encouraged. A structured program should be developed.

Off-site training locations, away from the store, are needed for managers to attend seminars. These should be scheduled at regular intervals, more than once a year, but not every week. This time allows managers to compare notes and to discuss common problems, in addition to attaining the seminar's intended objective.

3. The trainers should continue to assess their trainee's progress in meeting specific educational objectives. The trainer-managers and company trainers should continue the use of observational techniques, oral questioning, written exams, and project completion. Prompt and immediate feedback should be provided to trainees regarding their progress.

4. The company program directors should evaluate their apparel retail management training programs. Techniques for evaluating the overall effectiveness of training programs should be developed and implemented. Program goals and objectives must be clearly defined and communicated to trainers and trainees.

All managers who leave an organization should complete an exit interview. An analysis of managers' reasons for leaving the company could help with developing or changing specific training programs. Manager turnover rate should be available to the training program directors.

5. The companies should address the need to improve communication among entry-level, middle, and senior management. It is not what is happening that is most important, it is knowing what is happening. Company loyalty and employee satisfaction increases with both informal (oral) and formal (written) communications.

The combination of time and money, communication, consistency, evaluation, and standardization in training is paramount if a company wants to satisfy its customers and continue to be profitable.

6. An equally important recommendation is that educators in post-secondary institutions continue to emphasize courses in communications and feedback and assessment techniques.

Field practica and internships should be used to supplement classes and provide students with industry-based experiences.

For Further Study

The significance of the study was founded in the relevance of its practical applications. The issues that were discussed were of importance to the retail industry and to educators of retail and merchandising students. In retail, senior and middle management need to communicate with their managers and trainers. In academia, educators need to communicate with retailers. In both instances, the communication of needs and wants could help to improve education, promote the growth of companies, satisfy consumers, and increase job performance and satisfaction.

More studies documenting other retail management training programs are essential. Replication of the study, using the same methodology, very possibly could result in approximately the same results, because of the researcher's use of the multiple-case study format. However, the use of different companies, different trainers, different managers, at a different time in a different state, would enhance even further the reliability of the study.

In conclusion, this qualitative study gave an insight that quantitative research could not have realized. People--what they thought, how they perceived situations, and why they did what they did, giving their own interpretations of what their company's retail management training program was--have brought forth an awareness and description of the retail training program arena. They told what their experience was.

Since retailing is people intensive, attaining and retaining quality people is necessary for the survival of apparel retail companies. The development and implementation of a quality management training program could help in meeting the goals of retailers.

The development and application of a successful apparel retail management training program could help satisfy the primary goals of companies in the retail industry, specifically to make a profit and satisfy the customers. Successful management training programs could also help satisfy employee needs of self-fulfillment and job performance.

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ASSESSMENT OF WORK-BASED LEARNING PROGRAMS IN GEORGIA

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ABSTRACT

This study was designed to document the status of work-based learning programs (cooperative education and youth apprenticeship) in Georgia secondary schools. The perspectives of work-based learning coordinators, students, and employers were sought in order to provide information about how these programs are implemented and, more importantly, how to improve these programs. To address the purpose of this study, a survey research design was utilized. Data were collected from the three sub-populations with separate questionnaires. On the basis of data from each of the three sub-populations taken as a whole, nine themes were derived related to structure of the work-based learning programs and five processes themes by which they are implemented.

Introduction

Work-based learning through school-to-work programs, which contributes to both the intellectual and career development of high school students, is gaining acceptance by policymakers and educators as a means to improve the educational outcomes for many students. This increased acceptance of work-based learning coordinated by the local school has been brought about by changes in the U.S. and world economies, the American educational system, and the increased focus on the importance of preparing all students for the world of work.

As defined by the School-to-Work Opportunities Act (1994), a school-to-work program must include a school-based learning component, a work-based learning component, and a connecting activity component. The work-based learning component must include: (a) work experience opportunities for students; (b) job training and work experiences coordinated with learning in school-based programs that are relevant to students' career major choices, and lead to the award of skill certificates; (c) workplace mentoring; (d) instruction and activities in general work place competencies, including positive work attitudes, employability, and practical skills; and (30 broad instruction, to the extent practicable, in all aspects of the industry (The National School-to-Work Office, 1997).

School-to-work programs that incorporate work-based learning come in many forms, but have the common goal of providing students with experience in the world of work. The most common school-to-work programs available to facilitate the preparation of youth for transition to work include cooperative education, youth apprenticeship, registered apprenticeship, school-to-registered apprenticeship, clinical experiences,

internship or practicum, and job shadowing (Smith and Rojewski, 1993). These school-to-work programs arrange hands-on workplace experience for students that will provide them with opportunities to learn work-related skills and attitudes they could not otherwise acquire in a classroom. In addition, these programs may increase the students' prospects for future gainful employment (Stern, Hopkins, Stone, and McMillion, 1990).

The two most common school-to-work programs that utilize work-based learning in the secondary schools in the state of Georgia are cooperative education and youth apprenticeship. Each is a structured educational program that integrates classroom learning (school-based) with productive, structured work-experiences (work-based) which should be related to a student's career goal. Both cooperative education and youth apprenticeship programs are dependent upon local business to provide work-experience for students and the abilities and skills of the work-based learning coordinator who has the responsibility for managing the program.

A key element of both of these work-based learning programs is that they combine school and work during the same period of time. This may mean some hours of work each day, some days of work during the week, or some weeks working during the year. Combining school and work serves two purposes. First, it helps young people learn skills and knowledge to qualify for a full-time job in the near future. Second, it gives them the experience of using work to foster their own learning and thus contributes to their capacity for change and continued growth in the longer run.

Cooperative Education

Cooperative education is the most commonly available form of work-based learning in the public schools that is designed to assist students in making the transition from school to work. Cooperative education is a program of instruction that features agreements between schools and employers to provide on-the-job experiences that relate to a student's career focus. These experiences are based on objectives jointly developed by school personnel and an employer within the student's career area.

In a typical cooperative education program, employers provide part-time jobs in the student's career field. A teacher-coordinator of the cooperative education program arranges placements, develops a training plan with the employer specifying what the student is expected to learn on-the-job, and makes periodic supervision visits to the employer's business. The employer evaluates the student's job performance in consultation with the teacher-coordinator.

Cooperative education programs provide paid work experiences linked to the occupational programs students are pursuing. Students work on-the-job part-time (usually in the afternoon) and attend both academic and occupational-related course(s) during the remainder of the school day.

There are two types of cooperative education programs in the state of Georgia. In the first type, the school has a separate program for a specific career area: agricultural

education, business and office education, family and consumer science education, marketing education, trade and industrial education. A school may not have a cooperative education program in each career area, but the programs that it does have are specific to instruction within that career. The second type is the combination or interrelated approach. In schools where student enrollment is limited or employment opportunities in the community are scarce a single cooperative education program may exist. A single program, such as diversified cooperative training (DCT), would provide work-based learning experiences for students in a variety of career occupations.

Youth Apprenticeship

Youth apprenticeship is the newest form of a work-based learning program. This program offers students both school-based and work-based education experiences. It combines structured, paid work and training on-the-job with related classroom instruction. The emphasis is on contextual, real world learning through work-place experience.

Effective youth apprenticeship programs require extensive coordination between employers, schools, labor, and government because of its high academic standards and high-skill career opportunities. As designated by Georgia State legislation, some of the defining characteristics of youth apprenticeship are:

- Employers' active participation. Jobs, training and mentoring opportunities are provided to participants. In addition, employers assist in developing curricula and setting industry standards.
- Integration of work-based and school-based learning. Structured classroom instruction and work place experiences are integrated so that one reinforces the other and allows for the acquisition of skills with increasing levels of difficulty and complexity.
- Integration of academic and vocational learning. Cognitive and technical skill development, high academic standards, and infusion of each with aspects of the other that breaks down the traditional barriers between academic and vocational learning.
- Secondary and post secondary linkages. Structured connections generally begin in the 11th or 12th grade and continue into one or two years of post-secondary education.
- Award of an occupational skill certificate. In addition to the high school diploma and the post secondary certificate or degree, students receive a certificate of mastery of occupational skills.

This combination of "real" work experience, student-mentor relationship, integration of education and work, and certificate of accomplishment is designed to provide students with structured pathways from school-to-work.

Purpose of the Study

This study was designed to document the status of work-based learning programs (cooperative education and youth apprenticeship) in Georgia secondary schools. The perspectives of work-based learning coordinators, students, and employers were sought in order to provide information about how these programs are implemented and, more importantly, how to improve these programs.

Methodology

To address the purpose of this study, a survey research design was utilized. Data were collected from three sub-populations with three separate questionnaires. The first questionnaire "Assessment of Work-Based Learning Programs in Georgia" was completed by work-based learning coordinators (Smith and Thorton, 1998a). The population for this questionnaire was obtained from five sets of lists totaling 519 names of work-based learning coordinators and secondary schools from the Georgia Department of Education. Questionnaires were mailed to each of the identified work-based learning coordinators and upon completion of follow-up procedures, a total of 128 (24.7%) work-based coordinators responded.

Students currently enrolled in a work-based learning program provided data on the second questionnaire "Student Questionnaire on School-Sponsored Employment" (Smith and Thorton, 1998b). To arrive at a list of students within work-based learning programs to be surveyed, a cluster sampling approach was used. The sampling frame for this questionnaire was obtained from the five sets of mailing labels of work-based learning coordinators and secondary schools from the Georgia Department of Education. From the list of 519 work-based learning coordinators, 64 were randomly selected utilizing a table of random numbers. Each of the work-based learning coordinators selected was contacted by telephone to solicit their participation and to identify the number of students in the work-based learning program who were engaged in an actual work-based learning situation. A total of 40 work-based learning programs (62.5%) returned 878 student questionnaires.

The third questionnaire "School-Sponsored Employment Survey" was completed by employers supervising students in work-based learning programs (Smith and Thorton, 1998c). The 128 work-based learning coordinators participating in the first phase of this study were asked to provide a listing of five participating employers who supervised work-based learning students on-the-job. The work-based learning coordinators identified a total of 572 employers. Each of the employer were sent the employer survey instrument and upon completion of follow-up procedures 325 employers (59.4%) provided useable responses.

These three survey questionnaires, as well as follow-up interviews, provided a basis for the findings presented for this study.

Findings

On the basis of the data from each of the three sub-populations (work-based learning coordinators, students, and employers) taken as a whole, the following themes were derived related to structure of work-based learning programs (cooperative education and youth apprenticeship) and the processes by which they are implemented.

Structural Issues

The following structural issues for work-based learning programs were identified from data collected from the three sub-populations of this study.

Advisory committee. An advisory committee for the work-based learning program serves as an organized base for two-way communication between the work-based learning coordinator and representatives from business and industry. The committee's function is to advise and assist the work-based learning program on matters pertaining to the instructional program and policies.

The data suggested that program advisory committees exist mainly on "paper" and are not actively involved with the work-based learning program. Work-based learning program advisory committees should be firmly maintained as they provide the impetus and direction for program development.

Student identification or screening. Work-based learning programs offer students unique opportunities not available through "regular" in-school courses. The work-based learning coordinator has responsibility to help ensure that the students who can benefit most from the program actually become enrolled.

Data would indicate that though there were minimum requirements for entrance into the work-based learning program; basically "all comers" to the program were enrolled, regardless of career interest or abilities. Some students may enroll in the programs only to be "released early" for their part-time job or "to earn money" and have little interest in the curriculum nor have pre-employment skills required for positions within their career interest.

Job placement. Placement by the work-based learning coordinator of a work-based learning program involves establishing training sites (places of employment) and helping students select training sites that parallel their interests and abilities. Placing students in work-based learning situations involves preparing students for initial visits with prospective employers, developing training agreements and plans.

Data denoted that there is very little job placement of students. Students often come to the work-based learning programs already employed in a part-time position that they have found on their own, or with the aid of family or friends. This position is then used for the work-based learning portion of the program, but may not offer actual preparation of the student for their selected career or stated career goal.

Training agreement. Each student in a work-based learning site should have a signed training agreement that defines the responsibilities of the student, employing business, training supervisor (mentor), school, parent, and work-based learning coordinator that is signed by all participating parties and is kept on file by the school.

Differences between stated practice by teacher-coordinators and actual involvement of employers were noted in the data. The training agreement seems to be viewed as a “compliance” item that has no real meaning in the work-based learning program.

Training plan. A training plan is the key to effective instruction and learning at the work-based learning site. A training plan is a written learning plan describing the learning experiences the student will achieve on-the-job. The work-based learning coordinator and employer in consultation with the student should cooperatively develop the learning objectives identified for the training plan.

Even though teacher-coordinators implied that training plans were in place for a majority of students, employer and student data did not substantiate this claim. It was deduced from the data that the employer would “train” the employee according to their standards for the job held by the student. Further analysis of data indicates that students are spending a majority of their time “doing regular work” with little opportunity to experience activities requiring differing skills and increasing levels of ability.

Student evaluation. The evaluation of students’ progress in acquiring the necessary occupational competencies on-the-job is a key function of the work-based learning coordinator and the employer. It is through evaluation of students’ progress that effective plans can be made to provide the students with the experience they need to achieve their career goals.

Data indicates that evaluation of students does take place at the work-site. However, rather than evaluating work-based skills attained by students in relationship to an individualized training plan, the evaluation is often performed in accordance with standards set for all employees of the business. Evaluation of work-based skills attained by students was not usually conducted nor did the work-based learning coordinators and employers conduct performance reviews. Also, performance reviews are seldom conducted jointly between employers, work-based learning coordinators, and students.

Workplace mentor or training supervisor. Within a business or industry, there is a single individual who has agreed to serve as the student’s mentor or training supervisor and is responsible for the day to day instruction of the student while on-the-job. The mentor or training supervisor should be willing to work with the work-based learning coordinator in planning on-the-job learning experiences and related classroom instruction and in evaluating student progress.

Data indicated that a majority of employers identified an individual to serve as a student’s mentor or training supervisor, but few had been appraised as to their

responsibilities to either the student or the program. Very few mentors or supervisors had attended or participated in formal workshops or orientation meetings.

Supervisory (Coordination) visits. One of the responsibilities of the work-based learning coordinator is to make each student's on-the-job training an effective learning experience. This is accomplished through a system of regularly scheduled supervisory (coordination) visits to each employer's business in which students are placed for on-the-job instruction.

Data implied that there were initial visits by the work-based learning coordinator to introduce themselves and the program but few formal visitations once students were employed on the job. However, the employers reported frequent informational communication with the work-based learning coordinator.

Curriculum. The curriculum is the related in-school instruction which students in a work-based learning program receive in conjunction with their on-the-job training. The curriculum should be related to the job placement of the student.

Data provided by work-based learning coordinators of work-based learning programs indicated that the curriculum followed in each program came from curriculum guides and textbooks from various sources. The curriculum followed by the work-based learning coordinators specified certain units and objectives and very limited flexibility.

There is a limited relationship between the curriculum and instructional activities that students experience in the school and the activities and tasks that they perform on the work site. Additionally, further student data tends to reflect the lack of integration of academic and vocational subject matter that would allow a connection to work-based experiences and the school-based curriculum.

Process Issues

The following process issues for work-based learning programs were identified from data collected from the three sup-populations of this study.

Career awareness and development. Giving direction to the career development needs of students is an important aspect of a work-based learning program. Based on data provided by the three sup-populations, programs need to strengthen career awareness and exploration activities available to students. Participation in such activities could serve to validate the students' career goals and their related placement in a work-based learning situation that would be more appropriate to the attainment of their goals.

Promotion of the program. Promotional marketing efforts should have two functions: (1) to provide information that shapes the way the work-based learning program is perceived by individuals in the school, parents, and the community at large; (2) to create a pool of applicants for the student selection process. Based on results of

this study, marketing efforts in work-based learning programs vary in intensity; most are minimal doing just enough to fill the required openings for entering students.

Articulation. A work-based learning program should seek to increase students' opportunities to pursue post secondary education or advanced training. The recent movement towards linkages of secondary and post secondary education programs was not evident in the data on work-based learning programs, yet a large majority of students participating in the programs were planning to enroll in some type of post secondary institution or training program upon completion of high school.

Linking school-based learning with work-based learning. As noted in the curriculum findings, the linkage between what a student is learning in the school and what the student is doing on the job is somewhat limited in most instances. Few employers in this study participated in the conventional aspects of work-based learning programs such as training agreements, training plans, and student evaluation. Thus there may be limited linkage between what students learn at school and at work, because the employers are unaware of the expectations of the program including the curriculum.

Program evaluation. To determine the effectiveness of a work-based learning program, an evaluation model should document both the short-term benefits and long-term consequences of participation in the program. Data suggested that a formative evaluation process was conducted in only a small number of programs and that the results of these limited evaluations were underutilized.

Overall Conclusions and Recommendations

Beyond helping students find part-time jobs, work-based learning programs should help prepare them for future career mobility and further education. The following could enhance work-based learning programs within the state of Georgia:

1. Increasing the involvement of business and industry personnel within the program.
2. Developing effective secondary to post secondary linkages, including at least one year of post secondary education.
3. Implementing career exploration and information covering an array of opportunities and exposure of students to all aspects of an industry;
4. Augmenting the structural aspects of the programs including, but not limited to, student identification, job placement, training agreements, training plans, mentor or training supervisor development, supervisory visitations, and student evaluation;
5. Strengthening the programs of study, including both curriculum and instruction. The integration of academic and vocational learning as well as school-based and work-based learning should be documented.
6. Improving both the marketing activities and program evaluation processes of all work-based learning programs.

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ASSESSMENT IN THE VOCATIONAL EDUCATION CLASSROOM: USING INFORMATION FOR INSTRUCTIONAL DECISIONS

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Abstract

Secondary vocational education teachers were more likely to use information from performance assessments the most in making instructional decisions. More than one-half of the respondents reported to be very competent in the assessment process. A majority (over three-fifths) of the respondents reported a positive attitude toward assessment. Secondary vocational education teachers were more likely to decide what assessment methods to use. However, secondary vocational education teachers lacked planning time to use assessment methods effectively. Secondary vocational education teachers were less likely to use the following methods of assessment: portfolios, essay-type items, and standardized tests. These methods accounted for a small percent of the variance with selected independent variables (competence, attitude, and level of constraint). To be effective users of multiple assessments, secondary vocational education teachers need to be familiar with the strengths and weaknesses of different assessment methods.

Introduction

Over the years, there have been periodic education reform movements. The latter half of this century has seen increased emphasis on mathematics and science, prompted by the Soviets' launching of Sputnik; the movement to create and expand community colleges; the movement toward (and later retreat from) open schools and classrooms; increased attention to the needs of special education population students; generated by the broad social movement of the 1960s and 1970s; and more recently, the calls for better education to improve the nation's competitiveness in the global economy.

Recent education reforms began in the early 1980s and have focused on secondary education, prompted by concern about the nation's declining competitiveness in the international market, the relatively poor performance of American students on tests of educational

achievement (both nationally and internationally), and complaints from the business community about the low level skills and abilities found in high school graduates entering the workforce.

The Carl D. Perkins Vocational and Applied Technology Education Act of 1990 required accountability of all states that accept federal funds to support vocational education programs. This was to be achieved through a system of specified performance measures and standards which track both academic and occupational competency gains.

Pressures from all levels of policy making -- from local school boards to Congress -- for higher academic and skill standards, more accountability, and better certification of what students know, have led to a flurry of activity in the realm of assessment. Teachers are experimenting with a variety of tests -- and spending a lot more time giving them (Hoachlander, 1998).

Virtually all states employ some form of statewide assessment, and many are testing at more grade levels and in more subjects than ever before. The Atlanta-based High Schools That Work Consortium has embraced rigorous and frequent assessment as part of a commitment to keep score and promote school improvement, as have several other education reform groups (Hoachlander, 1998).

Accompanying this increase in testing activity is a push for different kinds of tests -- more "authentic" assessment than that produced by the traditional multiple choice exams and other forms of paper-and-pencil tests that have been the mainstay of assessment during the past three decades. Portfolios, student exhibitions, performance events, simulations, and tests that employ "open" or constructed responses all have found their way into the lexicon and practice of assessment.

How are secondary vocational education teachers using assessment data? The literature has revealed very little information about the assessment practices of this group of teachers. Given the importance of accountability in vocational education, we do need to know more about how vocational education teachers use assessment information.

Related Literature

Assessment is a broad term defined as a process for obtaining information that is used for making decisions about students, curricula and programs, and educational policy (see American Federation of Teachers, National Council on Measurement in Education, and National Education Association, 1990).

Decisions about students include managing classroom instruction, placing students into different types of educational programs, assigning students to appropriate classifications, guiding and counseling them, selecting them for educational opportunities, and credentialing and certifying their competence. Decisions about curricula and programs include decisions about their effectiveness and about ways to improve them (Nitko, 1996).

Kershaw and McCaslin (1995) cite six general categories as representing the various assessment methods which secondary vocational education teachers use to generate information for decision making. The categories of assessment methods revealed were (1) objective paper-and-pencil items, (2) standardized test scores, (3) informal observations, (4) essay-type items, (5) portfolios and performance assessments (a student's performance on homework, lab work, research papers, and projects). Gullickson (1984) reported that teachers viewed tests as important

instructional tools with the time and effort required for their use. Participants in the study agreed that tests increase student effort, affect student self-concept, create competition, improve student interaction and, in general, improve the learning environment. Green and Stager (1986) determined that a relationship of practical significance between attitudes and test use did not exist. They concluded that the relationship was probably affected by numerous other factors such as accountability demands, students' expectations and expectations of peers.

Hall, Carroll, and Comer (1988) investigated the relationship of assessment use to degree of autonomy in teaching. Their study revealed that the more autonomous teachers were, the less inclined they were to use the results of tests that had been imposed upon them. The authors concluded that autonomy potentially serves as a mediating factor in the application of test results in the classroom.

Gullickson and Hopkins (1987) concluded that the substantial constraints imposed on educational measurement courses will continue to cause students to be inadequately prepared for classroom evaluation tasks. Strong differences exist regarding what measurement instruction pre-service teachers should receive. "Teachers have not learned, and rarely apply those concepts that apparently receive major emphasis in measurement instruction" (p. 12).

Newman and Stallings (1982) reported that four of the six purposes for testing -- assessing achievement, assessing mastery, assigning grades, and planning instruction were related to a teacher's knowledge of testing. Gullickson (1984) stated that "the average teacher does not perceive college courses to be pertinent to his/her classroom testing needs" (p. 245). Although teachers appeared to be comfortable in their knowledge of assessment, Gullickson and Hopkins (1987) perceived that they were "much less prepared than what is desirable" (p. 245). Hills (1991) indicated that the most serious problem with teacher competence in this area was the fact that the primary means of assessment, the classroom test, is "often seriously flawed or misused" (p. 542).

The review of the literature reveals that limited studies have been conducted to address the perceived use of assessment methods by secondary vocational education teachers. The results of this study should be useful to the body of knowledge regarding the assessment practices of secondary teachers in West Virginia's vocational education programs.

Purpose and Objectives

The purpose of this study was to describe West Virginia secondary vocational education teacher's use of student assessment information in making instructional decisions. The specific objectives of study were as follows:

1. To describe secondary vocational education teachers' perceptions of their use of student assessment data for making instructional decisions.
2. To describe secondary vocational education teachers' perceptions of their competence, constraints, and attitudes toward the assessment process.

3. To determine what relationships exist between teacher use of assessment information and selected independent variables (competence, attitude, and level of constraint).

Procedures

The target population ($N = 647$) was all teachers in West Virginia who taught full-time at secondary vocational technical centers during the 1997-98 school year. The 1997- 98 West Virginia Education Directory was used to identify the population, which served as the sampling frame for the study. Using Krejcie and Morgan's (1970) table of sample sizes, a sample size of 240 was identified as representative of a population of 647 within a five percent margin of error. A cluster sampling technique was used to randomly select secondary vocational education teachers from the 32 secondary vocational technical centers in the state of West Virginia. Twelve secondary vocational technical centers were randomly selected to participate in the study in order to achieve the desired sample size of 240 (12 schools with an average of 20 teachers per school). Secondary vocational technical centers were numbered from 1 to 32, and the 12 schools were selected using the random number generation in Microsoft Excel.

Cluster sampling is typically used when researchers cannot get a complete list of members of a population they wish to study but can get a complete list of groups of "clusters" of the population. It is also used when a random sample would produce a list of subjects so widely scattered that surveying them would be prohibitively expensive (Vogt, 1993). However, the disadvantage of cluster sampling is that each stage of the process increases sampling error.

Instrumentation

The five-part survey instrument used in this study was adapted from a study conducted by Kershaw and McCaslin (1995). The use of assessment information was measured in part one of the instrument. Participants were asked to indicate the extent to which they use the information derived from six types of assessment methods in addressing 10 different instructional decisions. The six types of assessment methods used in this study were (1) objective paper and pencil items, (2) informal observations, (3) standardized test scores, (4) performance assessments, (5) portfolios, and (6) essay type items. The 10 instructional decisions (Kershaw & McCaslin, 1995; Nitko, 1996) that were addressed were (1) planning instruction, (2) diagnosing student weaknesses, (3) monitoring student progress towards course objectives, (4) communicating student achievement with parents, (5) motivating students to learn, (6) evaluating the effectiveness of instruction, (7) evaluating the instructional materials used, (8) grouping students for instructional activities, (9) encouraging students to assess their own work, and (10) assigning grades. Items were scored on a 5-point Likert scale ranging from "of no use" (1) to "of considerable use" (5).

Part two of the instrument measured participants' perceived level of competence in the assessment process. Participants were asked to indicate their competence in the assessment process using a series of competency statements based on " Standards for Teacher Competence in Educational Assessment of Students" (American Federation of Teachers, National Council on Measurement in Education, & National Education Association, 1990). Items were scored on a 5-point Likert scale ranging from " not competent" (1) to "extremely competent" (5).

Attitudes toward assessment were measured in part three of the questionnaire using a semantic differential scale. The scale was comprised of nine bi-polar adjectives which described the concept "assessment." A seven-point scale was used for each adjective pair to describe their attitudes toward the overall assessment process.

In part four of the questionnaire, nine statements were used to measure teacher's perceptions of constraints to their assessment activities. The 5-point Likert scale used in this section ranged from "strongly disagree" (1) to "strongly agree" (5). Part five of the instrument consisted of demographic questions.

To ensure validity of the instrument, a panel of experts was used to establish content and face validity. The panel consisted of three vocational education teachers, a regional teacher educator and two professors of vocational education. The instrument was field-tested for reliability with a sample of secondary vocational education teachers ($n = 11$) not selected for participation in the study. Changes indicated by the validation panel and field test were made. Internal consistencies for the scales in the instrument were as follows (Cronbach's alpha): Use of Assessment .94, Competency in Assessment .93, Attitudes Toward Assessment .95, and Constraints in Assessment .64, acceptable according to Nunnally and Bernstein (1994).

Data Collection

The Total Design Method (TDM) of conducting surveys (Dillman, 1978) was followed in all stages of the questionnaire construction and implementation process. A packet containing a cover letter, instructions for administering the questionnaire, and copies of the questionnaire were mailed to the principal of each school selected for the study. A total of 240 questionnaires was sent to 12 principals during October, 1997. A total of 144 usable questionnaires was returned for a response rate of 60%. Because a number of questionnaires were returned uncompleted and there was no way to conduct appropriate follow-up procedures to control for non-response, the results of the study can only be generalized to the 144 teachers who provided usable data.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS Version 6.1 for Windows). Descriptive statistics were used to summarize the data. Pearson's product-moment correlational analyses were conducted to determine relationships between use of assessment information and selected independent variables. The following standards as presented by Best (1981) were used to interpret the correlation coefficients (negligible = .00 to .20; low = .20 to .40; moderate = .40 to .60; substantial = .60 to .80; high to very high = .80 to 1.00).

Results

Demographic Characteristics

The largest number of teachers in the sample fell within the 42-51-year age bracket (52.1%) of the 144 cases, 56% of the respondents were male and 44% were female. Teachers had an average of 15.02 years of teaching experience and 9.66 years of related work experience. Trade and industrial teachers comprised the largest group in the sample and accounted for 43% of the cases. A graduate degree had been earned by 39% of the respondents. Respondents, who had completed a teacher preparation program on the job, and before receiving a baccalaureate degree, comprised 43% of the cases.

Teacher's Use of Assessment Information

Table 1 depicts teachers' use of assessment information and educational decision areas. Information generated from performance assessment was considered to be of more use to teachers in addressing instructional decisions than the other five assessment methods ($\bar{M} = 4.19$). Teachers rated performance assessment information to be of much use ($\bar{M} = 4.45$), when specifically addressing the task of assigning grades. Teachers rated information derived from informal observations to be more useful than the other assessment methods when grouping students for instructional activities ($\bar{M} = 3.95$). Portfolios, standardized test scores, and essay items were found to be of less importance to secondary vocational education teachers when compared to the other methods.

Table 1.

Means^a and Standard Deviations for the Use of Assessment Information Generated From Six Assessment Methods (n = 144)

Decision Area	Objective Item		Standardized Test Score		Performance Assessment		Informal Observation		Portfolio		Essay Item	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
1.	4.00	1.01	2.84	1.13	4.24	.82	4.09	.87	2.68	1.17	2.81	1.17
2.	3.96	.99	3.02	1.17	4.20	.93	4.16	.86	2.73	1.24	2.84	1.18
3.	4.13	.92	2.72	1.19	4.27	.89	4.00	.95	2.78	1.23	2.81	1.10
4.	3.89	1.15	2.83	1.27	4.03	1.02	3.80	1.09	3.02	1.35	2.72	1.20
5.	3.70	1.12	2.62	1.10	4.27	.83	4.00	.97	2.85	1.25	2.61	1.09
6	4.14	1.05	3.03	1.29	4.36	.78	4.06	.90	2.89	1.28	2.82	1.30
7	3.90	1.03	2.85	1.20	4.06	.91	3.84	1.02	2.79	1.21	2.72	1.15
8	3.49	1.18	2.67	1.22	3.93	1.10	3.95	1.12	2.62	1.24	2.50	1.18
9	3.68	1.23	2.60	1.23	4.16	.97	3.80	1.13	2.97	1.30	2.60	1.27
10	4.27	.97	2.37	1.36	4.45	.86	3.97	1.03	2.78	1.36	2.77	1.27
Overall Means	3.91		2.75		4.19		3.96		2.81		2.72	

Note. Educational Decision Areas:

1. Planning for instruction.
2. Diagnosing student weaknesses.
3. Monitoring student progress.
4. Communicating student achievement.
5. Motivating students to learn.
6. Evaluating effectiveness of instruction.

7. Evaluating instructional materials.

8. Grouping students for instructional activities.

9. Encouraging students to assess their own work.

10. Assigning grades.

^aBased on scale: 1= of no use; 2= of limited use; 3= of some use; 4=of much use; 5=of considerable use.

Perceived Level of Competency in Assessment

Table 2 provides information regarding teachers' perceived level of competence in individual assessment activities. Teachers considered themselves to be very competent ($M = 4.35 - 3.52$) in all but three areas of the assessment process (evaluating a student portfolio, grading an essay, and interpreting the scores of standardized tests).

Table 2.

Means^a and Standard Deviations for Teachers Perceived Competence in the Assessment Process
($n = 144$)^b

Characteristics	<u>M</u>	<u>SD</u>
Grading objective paper and pencil items	4.35	.76
Grading performance assessment	4.14	.82
Prepare students to take tests	4.12	.74
Administering a performance assessment	4.11	.85
Communicating assessment results to students	4.07	.85
Developing student grading procedures	4.06	.86
Selecting methods for assessing student performance	4.05	.79
Matching items to intended learning outcomes	4.03	.83
Selecting assessment methods for monitoring student learning	3.93	.76
Communicating assessment results to employers	3.84	.84
Using assessment results to monitor student learning	3.83	.90
Recognizing unethical methods of using assessment	3.80	1.04
Determining proper difficulty of items	3.78	.89
Developing a performance assessment rating scale	3.73	.90
Identifying the weakness of assessment methods	3.73	.74
Using assessment results to organize a sound instructional plan	3.73	.93
Writing directions for assessment methods	3.72	.94
Validating of test items	3.70	.90
Selecting a representative sample of items for use	3.70	.90
Communicating assessment results to parents	3.67	1.03
Determining appropriate number of items for assessment	3.67	.86
Identifying structural problems in objective questions	3.62	.84
Examining items for gender bias	3.52	1.00
Evaluating a student portfolio	3.38	1.15
Grading an essay	3.36	1.05
Interpreting the scores of standardized achievement tests	3.24	1.16

Note. ^a Based on scale : 1= not competent; 2 = slightly competent; 3 = moderately competent; 4 = very competent; 5 = extremely competent.

^b Three missing cases.

Attitudes Toward Assessment

A semantic differential scale was used to measure teacher's attitudes toward the overall assessment process. Teachers were asked to respond to nine pairs of bi-polar adjectives which were on either end of a 7-point scale. The scale was as follows: 1 = extremely negative; 2 = very negative; 3 = negative; 4 = neutral, 5 = positive; 6 = very positive; 7 = extremely positive. Overall, there was no indication that a negative attitude ($\bar{M} < 4 .0$) existed towards the assessment process.

Constraints to the Assessment Process

Table 3 describes the responses to each of the constraint statements. Teachers tended to agree that they decided on what assessment methods to use in their courses ($\bar{M} = 4 .28$). Teachers also tended to agree that additional planning time would allow for assessment methods to be used more effectively ($\bar{M} = 3 .94$). Over two-thirds of the items were rated as "neutral" (neither agree or disagree) by respondents in this study ($\bar{M} = 2 .69 - 3 .00$).

Table 3.

Means^a and Standard Deviations for Teacher Perceptions of Constraints to the Assessment Process (n = 144)

Item	<u>M</u>	<u>SD</u>
I decide what assessment methods to use in courses I teach	4 .28	.97
Additional planning time would allow me to use assessment methods more effectively	3 .94	1 .10
Equipment is available in my school for use in scoring tests	3 .06	1 .41
Quality published assessment materials are hard to find	3 .00	1 .18
Funds are available for buying published assessment materials	2 .91	1 .32
College courses were of little help in preparing me to assess student learning	2 .86	1 .25
In-service activities have helped develop my assessment skills	2 .81	1 .15
I have assistance in preparing student assessment activities	2 .75	1 .37
I do not have information on published assessment materials	2 .69	1 .20

Note. ^a Based on scale: 1 = strongly disagree; 2 = disagree; 3 = neither agree or disagree; 4 = agree; 5 = strongly agree.

Relationships Between Selected Independent Variables and Assessment Methods

The relationships between the use of assessment information and selected independent variables in the study are illustrated in Table 4. Teachers' perceived level of competence in assessment was shown to have a low positive relationship with the use of information from objective paper and pencil methods ($r = .33$, $r^2 = .1089$).

Attitudes toward assessment had a low and positive relationship with teachers' use of the assessment information derived from performance assessment ($r = .35$, $r^2 = .1225$). Constraints to the assessment process had a low and positive relationship with the use of performance assessment ($r = .21$, $r^2 = .0441$). Use of standardized tests had a negligible association with competence in and attitude towards assessment. The data also revealed that essay items and portfolios had a negligible association with attitude towards the assessment process.

Table 4.

Intercorrelations Between Selected Independent Variables and Assessment Methods (n = 144)

Variable	1	2	3	4	5	6	7	8	9
1. Competence	--	.37	.12	.33	.12	.27	.31	.18	.25
2. Attitude		--	-.04	.29	-.05	.35	.31	.01	.03
3. Level of Constraint			--	.12	.18	.21	.09	.20	.14
4. Objective Item				--	.30	.29	.27	.27	.34
5. Standardized Test					--	.06	-.07	.41	.49
6. Performance Assessment						--	.60	.19	.09
7. Informal Observation							--	.11	.10
8. Portfolio								--	.57
9. Essay Item									--

Note. Correlations above .16 are statistically significant at the .05 level.

Discussion and Conclusions

Results of this study revealed that performance assessments are particularly useful to secondary vocational education teachers. In previous research, Kershaw and McCaslin (1995) found that secondary vocational education teachers tended to place more emphasis upon the use of performance assessments than on other methods. Given that vocational education teachers use a competency based curriculum, it was not surprising to the researchers that a performance based method of assessment was of more use than the other five methods of assessments. Performance assessments has always been prominent among T & I teachers, which compose much of this sample. This is not a new phenomena among all secondary vocational education teachers.

Secondary vocational education teachers in this study reported that they perceived themselves to be moderately to very competent in the assessment process. The data seem to indicate that secondary vocational education teachers demonstrate a general level of competence in assessment, but do not feel as competent when dealing with assessing portfolios, essay items, and standardized tests. These results were consistent with findings from previous studies (Gullickson & Hopkins, 1987; Kershaw & McCaslin, 1995).

A majority (66%) of the respondents reported a positive attitude toward assessment. However, this was probably due to the fact that teachers in this sample were mostly homogeneous. On the other hand, this finding mirrors previous studies done by Green (1990) and Kershaw and McCaslin (1995).

Secondary vocational education teachers in this study were more likely to decide what assessment methods to use. However, secondary vocational education teachers lacked planning time to use assessment methods effectively. In a study by Griswold (1988), teachers reported that they required more time if meaningful assessments were to be developed or improved.

Coefficients of determination revealed that use of portfolios, essay items, and standardized tests accounted for a small percent of the variance with selected variables (competence, attitude, and level of constraint). This finding suggests that secondary vocational education teachers lacked the necessary skills to use these three methods of assessments. This finding is consistent with previous studies in assessment use (Goslin, 1967; Yeh et al., 1981; Green, 1990; Kershaw and McCaslin, 1995).

Overall, the results of this study seem to suggest that secondary vocational education teachers are doing an adequate job (passable but not outstandingly good) concerning the use of assessment for instructional decisions.

Recommendations

The following recommendations are based on the findings and conclusions of this study.

1. To be effective users of multiple assessments, secondary vocational education teachers need to be familiar with the strengths and weaknesses of different assessment methods. Each method should be selected to achieve a well-considered objective and the complete set of strategies designed to provide a well-rounded summary of what students know and can do.
2. Pre-service and in-service providers should structure workshop to address the necessary skills in evaluating a student portfolio, how to evaluate essay test items, and how to interpret the scores of standardized tests.
3. To make changes that are conceptually meaningful, secondary vocational education teachers need: appropriate materials to try out and adapt; time to reflect and to develop new instructional approaches, and ongoing support from experts.
4. Qualitative studies should be conducted to examine the use of assessment methods by vocational education teachers. Qualitative research involves intensive data collection, that is, collection of extensive data on many variables over an extended period of time, in a naturalistic setting. Variables which contribute additional variance in the use of assessment information could be identified and examined.

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MINI-TIP

Using Qualitative Research to Frame the Examination of an Alternative Vocational Teacher Education Program

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The presentation will discuss the results of doctoral research which investigated a structure for use in the examination of an alternative vocational teacher education program.

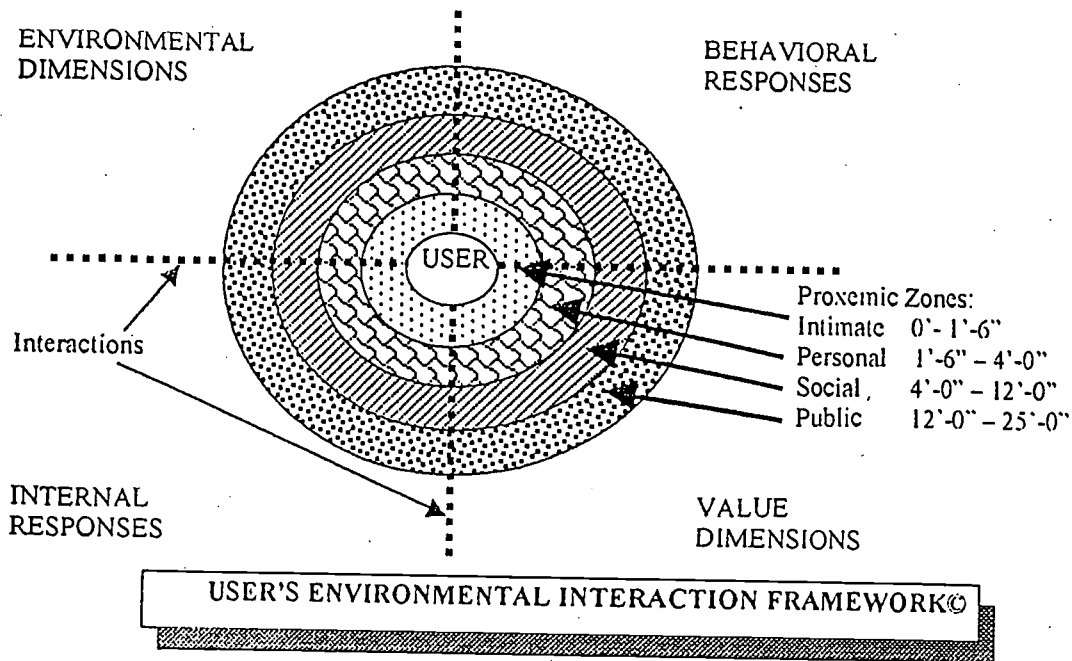
The objective of the research was to verify the effectiveness of a previously identified cluster of common elements in a qualitative illumination of an alternative vocational pedagogical delivery system. Selected findings reveal the views of faculty and students on the program goals, identification with the program, the program structure, research on teaching, and students' passage through the program.

The conclusions authenticate the value of the structure for use in scrutinizing existing traditional and alternative teacher education programs. Further, the framework can be used to assess, transform, or initiate such programs.

MINI-TIP

CHARACTERISTICS OF A CONCEPTUAL FRAMEWORK ADDRESSING THE ENVIRONMENT OF THE INSTRUCTIONAL SPACE--HOLISTICALLY; DESIGN, USERS, PEDAGOGY, AND TECHNOLOGY.

By: Dr. Lennie Scott-Webber, (1998) Assistant Professor—Interior Design, Virginia Polytechnic Institute and State University; 213 Wallace Hall, Blacksburg, VA 24060—0410.



This research studied the classroom environment as a holistic setting: user, environment, proxemics, pedagogy, and technology. The conceptual framework "User's Environmental Interaction Framework (Scott-Webber, 1998) shown above is divided into three distinct areas. Area I includes environmental and value dimensions along with internal and behavioral responses from the subject (user); analyzed by a questionnaire format. Area II, the proxemic zones (Hall, 1969) studies user behavioral activities in these zones—by mapping techniques. The third area includes interactions imposed upon the space; in this case, pedagogy and technology—using both questionnaires and mapping techniques. Step-wise and Canonical Discriminant Analyses were used to analyze the 52 questions administered to 120 subjects. Overall, there was significance between faculty and students in environmental and value dimensions, and internal responses, but not with behavioral responses. The mapping signified the majority, of faculty, continue to keep their backs to students and write on the blackboard. Students are grouped too closely together (encroachment on the intimate zone), and feel crowded. While some faculty struggled against their environmental settings (e.g., a rectangular box) and tried different pedagogical styles, most indicated that the setting forced them to return to the lecture format (e.g., fixed seating or large class sizes). Technology was used in the classroom primarily to support the lecture format; presentations were given using PowerPoint software or the television to present a movie, or video information. The conceptual framework

proved a useful tool ensuring all aspects of a setting are considered in researching human/environment interactions.

Reference: Hall, ET (1969). *The hidden dimension*. New York: Doubleday.

Scott-Webber, L. (1998). *Programming: A problem solving approach for users of interior spaces*. Houston, TX: Dame Publishers Inc.

MiniTip

Strengths and Weaknesses of E-mail as a Survey Research Method

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Purpose: This session will report on the recent developments associated with using e-mail as a survey delivery and collection technique. During this session, I will report on the strengths and weaknesses of using e-mail as a survey research tool in a variety of settings.

Description: The strengths and weaknesses of e-mail as a survey research tool follows:

Strengths

1. Delivery/response speed--surveys can be delivered or redelivered anywhere in the world in a matter of seconds.
2. Low costs--the e-mail method of data collection costs less than face-to-face interviews and mail and telephone surveys.
3. Geographic coverage--e-mail surveys can be delivered to locations around the community or around the globe with ease.
4. Favorable response rates--e-mail survey response rates compare favorably with those of other survey research methods.
5. Ease of editing--being computer based, e-mail surveys and participant mailing lists are easily edited.
6. Open responses--researchers have found participants to be more open when responding to an e-mail survey than those individuals replying to a paper and pencil survey.
7. Environmental correctness--e-mail surveys reduce the need for envelopes, ink cartridges, and paper which lessens the demand for natural resources.
8. Semi-interactive--being semi-interactive, participants are able to communicate with the researcher if clarification is needed.
9. Response options--participants have several methods of returning the survey: e-mail, fax, and traditional postal mail.

Weaknesses

1. Technical problems--due to incompatible hardware and software, many technical problems may occur.
2. Reduced confidentiality--participants may be reluctant to provide honest responses because of the perceived lower level of confidentiality associated with e-mail.

3. Sample selection--population and sample selection is limited to those individuals who have and use an e-mail account.
4. Supplemental orientation--additional instruction may be required for participants to completed and return the survey online.
5. Presentation difficulties--hardware and software limitations may make developing a high-quality survey presentation difficult.
6. Bias problems--self-selection bias is likely to taint the results of an e-mail survey.

A detailed paper outlining the strengths and weaknesses of using e-mail as a research tool will be provided to participants at the presentation. Additional information can be obtained by contacting Dr. Allen D. Truell, University of Missouri-Columbia, 316 Hill Hall, Columbia, MO 65211 or calling (573) 882-3296 or e-mailing pavtat@tiger.coe.missouri.edu.

Justification for Grand Carousel Presentation

Like other survey research methods that preceded it--face-to-face interviews and mail and telephone surveys--e-mail research is evolving. E-mail presents a number of distinct advantages for survey researchers; among the most commonly noted are speed, lower costs, wide geographic coverage, favorable response rates, ease of editing, openness of responses, environmental correctness, semi-interactive, and a variety of response options. The most commonly reported weaknesses of e-mail are technical problems, reduced confidentiality, sample selection, need for supplemental instructions, presentation difficulties, and bias problems. As more studies are conducted, researchers may smooth out these rough spots associated with e-mail use; however, researchers exploring the use of e-mail must always evaluate its strengths and weaknesses as a data collection method in a specific context. All indications are that the use of e-mail as a survey research tool will continue to increase.

Mini Tip

A Redesigned Program for the Preparation of Teachers

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Much attention is being focused on restructuring the preparation of teachers for our nation's schools. Professional development schools, university-school partnerships, field-based experiences, contextual learning, reflective teaching, and problems of practice are all concepts associated with the preparation of teachers. The session will present the design for a redesigned teacher preparation program using a university-school partnership model to involve students in an integrated field experience component each of their last six semesters of coursework. In addition, the overall design of the program will be presented as well as the plan for faculty input/governance, the role of the partnership in providing field experiences, and a description of an induction year teaching fellows program designed to provide mentoring for new teachers and inservice activities for teachers in the school.

Both the academic and popular press have focused on the need for teacher preparation programs to be redesigned. Considerations involve changing the culture of public and private schools at the same time that colleges and departments of education are changing in approach and delivery. Earlier and sustained field experience are key features of such proposals. Other issues involve faculty input/governance, induction year experiences, and the length of the teaching internship.

Participants will be able to review: the initial lock step four year program design with an immersion semester option as compared to the redesigned three year sequenced program with an immersion option; the structure and responsibilities of the faculty committee charged with oversight of the program; and, the role of the school-university partnership in coordinating the integrated field experience phase of the program.

It was concluded that evaluation and reflection are key components of redesigning teacher preparation programs. Faculty, partnership teacher, and student input are all important in implementing and sustaining program change.

Mini Tip

Exploratory Style of Vocational Educators

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Purpose and/or Objectives of the Presentation

The objectives of this study were to examine the explanatory style of secondary vocational educators and determine their ratings based on: 1) composite positive, composite negative, and composite positive minus composite negative; and 2) personalization, permanence, and pervasiveness.

Brief Description or Discussion of Topic

Explanatory style is one's habitual way of explaining events, good and bad; it is a habit of thought. Explanatory style is a descriptive term used to explain variations in people's response to uncontrollable events. It illustrates how people habitually explain good and bad events they encounter in life; it is the hallmark of whether you are an optimist or a pessimist. Explanatory style reflects individual differences along three dimensions. Those dimensions are permanence, pervasiveness, and personalization. Permanence is about time; it determines how long a person gives up (stable or unstable). Pervasiveness is about space, global and specific. People who make universal explanations for their failures give up on everything when a failure strikes in one area. People who make specific explanations may become helpless in that one part of their lives. Personalization is the easiest to understand. When bad things happen, we can blame ourselves (internalize) or we can blame other people or circumstances (externalize).



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